**SHARED DELIBERATE PRACTICE:**
A CASE STUDY
OF ELITE HANDBALL TEAM TRAINING

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**ABSTRACT**

In this case study of a Danish elite handball team, we explore team learning processes in order to examine to what extent team members’ development of expertise is a shared deliberate practice. By drawing from theoretical frameworks on expertise and deliberate practice (Ericsson, 2006) and team cognition (Salas, Fiore, and Letsky, 2012), we aim to answer what characterizes efficient and successful handball team training. The case study involved participant observation and interviews, and it included the female first team in a Danish handball club Randers HK. The team is amongst the best three teams in Denmark. In particular, the case study found that important factors for shared deliberate practice are concentration, feedback and role modeling. There are four theoretical findings. 1. Deliberate practice in team sport is a shared activity. 2. Both structured tactical training and match training are deliberate practices. 3. Concentration mediates team cognitive skills. 4. Feedback and role modeling mediate team cognitive skills. From an applied perspective, this study points to the value of seeing team sport as necessitating shared deliberate practice. Team players need to train shared understanding and learn how to negotiate the coach’s orchestration of the game plan. Specifically, the results may lead experienced coaches in high performance team sports to use experienced athletes to engage in verbal feedback and being explicit role models to less experienced players.

**Keywords:** Deliberate practice; Handball; Expertise; Team Cognition

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INTRODUCTION

Handball is a team game that requires dynamic responses on behalf of team members. Team members need to read each other’s and opponents’ intentions and actions. Even expert performers struggle to learn such skills. This article concerns development of expert handball players’ expertise as dynamic skills acquired through deliberate practice in team training. A cornerstone in handball players’ expertise is situation awareness defined by Endsley (2006) with reference to skilled practitioners as an “up-to-date understanding of the world around them” (p. 633). Situation awareness is more formally defined as “the perception of the elements on the environment within a volume of time and space, the comprehension of their meaning and the projection of their status in the near future” (Endsley, 1999, cited in Endsley, 2006, p. 634).

The following situation from an elite handball match illustrates the dynamic skills such as situation awareness necessary for expert handball team players: The back court player runs directly towards the chain of defense in an attempt to penetrate it. The pivot realizes her team mate’s intentions, tries to block the defender next to her in order to create a gap for the approaching back court player. But the defender avoids the block and runs forward to meet the back court player. This leaves the pivot unguarded. The back court player realizing that her chances of finding a gap in the defense are vanishing picks up the signal from the pivot’s raised hands and passes the ball over the approaching defender and into the hands of the pivot. The pivot turns around and scores.

In game situations like the above, an individual handball team member and the team as a whole must make dynamic coordinated responses. They are dynamic because the situation changes moment by moment as opponents take countermeasures and decisions must be fast paced and arise in the moment and rely on the response of several team members. Accordingly, the team must be able to operate as a unit and the expertise of a team goes beyond its individual members (Eccles and Tennenbaum, 2004). Ericsson and Lehmann (1996, p. 291) hypothesize that “expert performance is an extreme adaptation to task constraints mediated through deliberate practice”. The point here is that a maximal adaptation on behalf of expert players is required in the domain-specific constraints inherent in handball (e.g. dynamic team situations coupled with well-defined tactical systems as discussed later). Therefore research is needed to explicate how this adaptive expertise is developed in a team based environment.

Becoming an expert sport team player might also depend on deliberate practice. Ericsson and co-researchers (Ericsson, 2006; Ericsson, 2007; Ericsson, Krampe, and Tesch-Römer, 1993) have argued that the notion of “deliberate practice” describes the qualities demanded of rehearsal practice seen as social activities that results in expert performance:

Throughout development toward expert performance, the teachers and coaches instruct the individuals to engage in practice activities that maximize improvement. Given the cost of individualized instruction, the teacher designs practice activities that the

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1Handball is a team sport (a team = six outfield players and one keeper) and a ball game played indoors on a court of 40 by 20 meters in games of 2x30 minutes. The overall purpose is to pass (throw) a ball around among one’s team and attempt to score more goals than the other team by throwing the ball into the goal of the other team. The game is fast and entails many goals. Also, the game involves a good deal of bodily contact and corporal wrestling.
individual can engage in between meetings with the teacher. We call these practice activities deliberate practice and distinguish them from other activities, such as playful interaction, paid work, and observation of others, that individuals can pursue in the domain (Ericsson, Krampe, and Tesch-Römer, 1993, p. 368).

The question is whether the theory of deliberate practice rooted in a cognitivist framework of expertise sufficiently accounts for team-based learning? While Simon and Chase (1973) argued that expert skills acquisition in chess and soccer was fundamentally similar in terms of pattern recognition, Ericsson and Smith (1991) in a literature review concluded that experts after thousands of hours of deliberate practice differ qualitatively in their information processing. Team sports such as soccer and handball are dynamic and require coordinated responses between team players in relation to opponent players as the game unfolds. Team players need the ability to integrate “the operations of the team in a timely way to form a composition of operations that achieves satisfactory performance” (Eccles and Tennenbaum, 2004, 543).

The aims of this article are twofold: (1) to identify and describe the relevant training situations pertaining to high performance handball team training and (2) to examine how the handball players’ development of expertise depends upon shared deliberate practice. By shared deliberate practice we refer both to ways in which deliberate practice is shared between team players and to the idea that deliberate practice should be conceived at team level.

Our argument is that the practice of handball and other team-sports is a matter of social interactions and coordinated actions between the players (Ronglan, 2009) and this type of practice can fruitfully be extended within the theoretical framework of expertise and deliberate practice (Ericsson, 2007). The importance of shared deliberate practice as a form of team-based learning is captured by Therese Brisson, Olympic gold winner and six times World Champion in ice hockey:

An important factor in the development of elite athletes is the training group [...] the less experienced athletes learn from the more skilled, and those who are pushing to get the top challenge the more skilled athletes on a daily basis (Starkes and Ericsson, 2003, p. 293).

**DELIBERATE PRACTICE AND TEAM TRAINING**

Research on deliberate practice suggests that extended engagement within a certain practice domain does not in itself necessarily lead to the acquisition of expertise (Ericsson, 2007). The development of expertise requires that training activities are specifically designed to improve the performance of the athlete, and that the athlete deliberately concentrates on improving particular aspects of his/her performance when engaged in training activities.

As a prime example of deliberate practice, Ericsson uses aspiring experts such as violinists’ solitary practice in which they work to master specific goals determined by their music teachers at weekly lessons (Ericsson, 2006, p. 693) or chess players playing through published games of the very best chess players in the world (Ericsson, 2006, p. 699). Jenkins (2010, p. 6) argues that the notion of deliberate practice involves the following characteristics: solitary practice that is coach mediated, goal-directed, measurable, and highly
structured by the coach. Furthermore deliberate practice requires hard work and sustained concentration and attention in order for the practitioners’ current level of performance to be exceeded.

Even though becoming an expert might sometimes require lone training what Ericsson (2007) calls the “solitary and non-social nature” (p. 23) of deliberate practice, he acknowledges that social-cultural factors shape the way deliberate practice is orchestrated within the specific domain. Firstly, deliberate practice-activities are based on the methods of practice that have been developed through time by previous generations in the domain and that this “body of organized knowledge” is “transferred from the current to the next generation through instruction and education” (Ericsson, 2006, p. 692). Secondly, Ericsson (2006) emphasizes that deliberate practice-activities are often structured by coaches, but that the expert athletes “will gradually acquire mechanisms that increase their ability to control, self-monitor, and evaluate their performance ... and thus gain independence from the feedback of their teachers” (p. 696). Furthermore, Ericsson (2006) mentions in passing that there is a form of “team-related deliberate practice” (p. 695), but research needs to be done to clarify whether this form of deliberate practice is the same as or different from as individualized deliberate practice. From what has been reviewed above it could be hypothesized that team handball expertise is not a solitary achievement but hinges on team cognitive skills.

The notion of deliberate practice is commonly used in research that investigates the training of expert athletes. Various researchers have discussed the validity and generality of deliberate practice across different sports disciplines such as darts (Duffy, Baluch, and Ericsson, 2004) wrestling (Hodges and Starkes, 1996), martial arts (Hodges and Deakin, 1998), soccer and field hockey (Helsen, Starkes, and Hodges, 1998), and golf (Jenkins, 2010). Helsen, Starkes, and Hodges (1998) warn that in the context of team sports, the deliberate practice framework need to differentiate between the investment in team training versus individualized training among elite and sub-elite athletes. The notion of shared deliberate practice aims to encompass team training, for instance in competition and match training, in order to account for the development of expertise within sports teams. In a study by Baker, Côté, and Abernethy (2003), it was found that team sport athletes single out competition and match play ”as the most helpful form of training for developing perceptual and decision-making skills” (p. 346). This calls for further investigation into how team sports expertise is developed and what characterizes shared deliberate practice.

**METHOD**

We adopted the case study as our methodological framework because we want to understand a real-life phenomenon, in this case the peer learning situations in elite handball players’ shared practice, in depth and such understanding encompasses important contextual conditions (Yin, 2012). As Flyvbjerg (2006) emphasizes, “The case study produces the type of context-dependent knowledge that research on learning shows to be necessary to allow people to develop from rule-based beginners to virtuoso experts” (p. 221). The case study design was chosen because the handball sport training situation is context dependent and the aim was explorative not testing of quantifiable hypotheses. Our aim has been to be sensitive to and make sense of the athletes’ learning experiences, while also examining the events and interactions transpiring between the athletes during practice sessions.
Case Selection

We selected one of the two best first teams in Danish women’s handball. The choice of this particular team in the handball club named Randers HK was based on three criteria. The first, most important, selection criterion was the high performance of the team because we wanted to study examples of best practice, that is a training practice that has consistently shown results superior to other teams in the same performance level. The second selection criterion was the potential presence of peer learning between high-performing handball players (skilled and experienced athletes) and novices (younger and less skilled and less experienced athletes) in the same team. The third selection criterion was availability or accessibility, which is on the one hand the participants’ willingness to share their experiences and training situations with us and on the other hand the club managers’ acceptance of our presence in numerous training sessions.

Participants

Since 1996 Randers HK has positioned itself in the top three in the leading Danish handball league for women. In the 2011-12 seasons the club won the Danish league and the team came in second in the previous two years. The team consists of 18 players and is led by one head coach and one assistant coach. In order to focus our case study on team-based peer learning between expert players and novice players we selected four case persons, two experts and two novices. The experts (Mette and Katrine) were between 31 and 33 years old, and they both had more than 10 years of experience in playing handball at the highest international level. The both participated in and/or won Champions League as well as Olympic Games several times. The novices (Sille and Sofie) were between 18 and 19 years old. They had no experiences in playing handball at the highest international level, but were selected to the first team by the head coach because he considered them to be sufficiently talented and hard working to join the training with the more experienced first team players.

Procedure

The qualitative data were generated from participant observations (Spradley, 1980) of the four casepersons’ participation in the handball training and interviews (Kvale and Brinkmann, 2009) focusing on the observed training. The observations were made over 13 days of training over the course of one year and were used to contextualize the peer learning situations in focus, prepare an interview guide and to stimulate further descriptions during the interviews. During the training sessions the principal researcher acted as a “passive participant” (Spradley, 1980, p. 59). This means he was present at the training sessions as a bystander, once in a while taking part in informal conversations with the athletes and the

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2The real names of participants have been used. Prior to the study we informed the participants about our interest in providing them anonymity in the presentation of data. However, the participants were interested in disclosing their names in order to make an example of best practice and therefore allowed the publication of their real names. We informed the participants about the consequences in case of lack of anonymity, and consequently we obtained permission to write their real names. In accordance with guidelines laid out by the Danish Data Protection Agency, their consent was obtained with the signing of a statement of consent.
coach before and after the sessions. Field notes were taken at the time, mostly in the form of cues and short sentences. The notes were further developed into more detailed descriptions immediately after each observation being made, and they included both descriptions of transpiring events, conversations, and preliminary theoretical reflections.

We prepared an interview guide taking point of departure in the observed training. The interviews included topics related to the athletes’ experiences of good and bad team performances, how good team play was learned during practice and how the players helped and guided each other during practice. Adhering to the alternative method of data management in mixed-method studies suggested by Halcomb and Davidson (2006) the principal researcher audiotaped the interviews, took field notes, completed reflective journalizing and listened to the interviews several times in order to amend and revise the notes. This phase was followed by thematic analysis used to elicit common themes in the interview data and the themes were discussed with a second research team member. The final stage of data management involved a thematic review and re-listening to the audio-recordings to “identify illustrative examples with which to demonstrate the meaning of the themes from the participants’ perspective” (Halcomb and Davidson, 2006, p. 42). These examples were transcribed verbatim in order to present the data in papers. The interviews were conducted in Danish. The principal researcher translated the examples provided in this paper into English.

Analysis of Data

The researchers conducted a theoretical reading of the data (Kvale and Brinkmann, 2009) by applying the theoretical framework to facilitate interpretations of the data and discussions of the findings. The aim was to attempt to triangulate the observations with the interviews with the athletes’ own descriptions in order to reach a deeper understanding of how deliberate practice facilitates team learning processes.

The first author collected the data and was therefore thoroughly versed in the case. Familiarity with data was achieved by iterative data collection, review of field notes and listening to whole interviews several times before coding. The analysis was focused on processes of learning within the athletes’ practice sessions, such as the structuring of the training, and the way players approach their training and each other. An analytic strategy was for the co-researchers to play the devil’s advocate (Kvale and Brinkmann, 2009) by looking for disconfirming data, questioning a particular reading by anyone of the researchers and developing and testing interpretations in dialogues with co-researchers. This study relied both on observations of how players trained and research interviews that were retrospective verbal accounts of how players thought they learned.

As mentioned in the research literature (Ericsson and Simon, 1980), it is a vexed question whether it is valid to deduce from retrospective verbal reports to actual behavior. In this case it is relevant to question whether what a player says she learned through deliberate practice might is in fact how she learned it. In light of this challenge we were careful to deduct uncritically from the observations of skilled practitioners to how they become experts and we used the triangulation of the observations and interviews and the method of playing the devil’s advocate and constantly checking findings against the research literature on deliberate practice and team cognition.
As a further argument why interviews as verbal recalls with athletes is a valid means of inquiring into how they learned we will cite the argument by Helsen, Starkes and Hodges (1998) that expert athletes have eased recall because daily training is such an ingrained part of their daily routine.

**RESULTS AND DISCUSSION**

The purpose of the study was to identify and describe the relevant training situations pertaining to high performance handball team training, and to examine how the handball players’ development of expertise depends upon shared deliberate practice.

The data analysis identified what characterizes shared deliberate practice in a high performance team. First we describe two different types of training situations: structured tactical training and match training. Second we investigate the shared deliberate practice characteristics as they pertain to the team training.

**Structured Tactical Training**

In the tactical meetings the coach lays out the tactics that the team must follow in the next game. Often the coach uses video to illustrate the preferred play formation, tactics and habits the opposing team has exhibited in past games. The next step is to explain how the team should respond to these action tendencies of the opposing team. In the structured tactical training the coach makes radical adjustments to the game plan for instance he decides that the game score does not count in order to get the players to work with a few specific tactical systems as part of deliberate practice.

In this type of training the coach often freezes the game so that the players remain in either defensive or offensive formations.

These adjusted game situations are repeated several times in order for the players to adjust their team tasks and team roles. As part of this shared deliberate practice, the coach repeatedly interrupts the training activity and evaluates the players’ performances according to how well they align or conform to the tactical system. The coach’s evaluation is aimed at both the team and individual players.

These training activities fit Ericsson’s description of deliberate practice in so far as they are designed and monitored by the coach, are structured and aimed at explicit well-defined tasks, and aim to improve team and individual performance. The coach aims that deliberate practice target the team’s strengths and weaknesses in order to match or rather overmatch the weaknesses of the upcoming opponent team that they are playing next. In these training activities, the coach has considerable influence on defining the critical aspects that the individual players have to be aware of and work with in order to improve the team’s performance. However, in the research interviews Mette and Katrine stress that tactics should be a team matter and not only an individual task, even though the coach addresses tactics as the responsibility of the individual player. Both players warn that the team can sometimes overlook the importance of being critical towards the intended tactics. Mette describes a situation from a match in which a player had a good opportunity to attack and score, but did not seize this opportunity.
Instead she passed the ball as dictated by the coach’s tactics and the team did not score. So if the player is too aware of the tactics she might become constrained and incapable of acting according to the dynamic situation of the game. Mette reflects on this problem that renders the player a bit like a “machine” who follows tactical rules without knowing when to apply them by staying alert to what happens in the specific situation:

You become a bit paralyzed [by the tactics] instead of seeing what actually happens or thinking: How will she [the opponent] respond if I do like that [and not as planned]? That is, to feel one’s way. (Mette)

As argued by Ericsson (2006, p. 694), coaches and players have to concentrate on the critical aspects that need improvement. But, as the case study shows, the explicit tactical goals might lead players to narrow their focus of attention. This has detrimental effects on the adaption of the specific game context of the next match. In this way this strategy of concentrating on a specific and critical aspect unintentionally teaches the players to neglect what has been called situation awareness defined by Mohammed, Tesler and Hamilton (2012) as the team members’ reflection on the dynamic demands of a concrete situation and the extent to which individual team members’ reflection overlap with that of others.

**Match Training**

Match training forms a continuum from simulated games (for instance 4 versus 4) to full-fledged training matches against other teams. Half of the team’s training was focused on game-like situations in which the players work to refine and adjust their interplay in the team’s defensive and offensive lines, rather than training in basic throwing techniques. During match training the coach forms two opposing teams of 4-7 players. The coach also frequently substitutes players and thereby changes the formations of the teams. Furthermore, talented young male players are sometimes invited to participate in the training in order to add variety to the possible team constellations. Mette explains that variety helps the team to deal with unfamiliar challenges and develop team adaptability. Mette and Katrine say that the male players are “stronger and faster” and “make better feints” than their ordinary team mates. When playing against the male players:

[…] you can’t just stay on the crease [the marking line in front of the goal] and believe you can block the guy who comes pounding against you […]. You have to move forward and tackle him hard. (Katrine)

Playing in a variety of demanding match situations stimulates the team members to adjust their style of playing by playing not only “harder” but also “smarter” given that the team members constantly are facing a wide variety of opponents due to the frequent substitutions the coach makes during match training.

Taking the example of golf, Ericsson Prietula and Cokely (2007) argue that once the beginner has learned the basics of the game she does not improve substantially by merely going more rounds, but only by taking multiple shots from the same location and by deliberating on what goes on when playing these shots. Similarly, deliberate practice consists in spending time and space to think and re-think, evaluate and re-evaluate, keep trying the
same difficult shots and correct mistakes repeatedly. Thus, whole game training is not a deliberate practice because this often encourages players to "rely on well-entrenched methods rather than exploring alternative methods" (Ericsson, 1993, p. 368). In summary, for match training to be effective, time and space for shared deliberate practice is necessary.

The players in this study emphasize that match training actually offers opportunities for exploring alternative ways of handling a game situation. For instance, Sofie says that match training teaches the players something that cannot be completely learned in highly structured training situations.

It is in these situations [match training] you are allowed to think for yourself, because a lot of opportunities turn up from players being dragged. And we make gaps for each other, which means that there are more opportunities than if you are just glued in front of one defender [constrained by structured training activities]. (Sofie)

Although Sofie acknowledges the importance of repeating shared movement patterns and team coordinate response during structured tactical training, she tells that players encounter situations during match training that cannot be replicated in the structured training. Katrine emphasizes the importance of match-play without being restricted to following pre-arranged tactics, because these less restricted game-situations force the players to develop shared patterns of movement “out of nothing”. This is based on the players’ “feel for each other”, which can be interpreted as a demanding type of team situation awareness where team players need to make up shared understandings on the spot. This way match training teaches the players to become responsive to the unpredictability of the game.

In summary, studying deliberate practice in a team context reminds us that it is not only the individual player’s flexibility and decision-making skills that are developed during match training, but also the team situation awareness and dynamic decision-making skills.

What Characterizes Shared Deliberate Practice?

As might be glimpsed in the foregoing, the players found that the quality of the training, whether structured tactical training or match training depends on shared deliberate practice. The analysis found that two key elements in shared deliberate practice are (1) concentration and (2) feedback from coach and role-models. These elements constitute a shared enterprise that supports the following team cognitive skills: team coordination, team situation awareness and shared understanding. First we analyze concentration and feedback as shared deliberate practices. Second we delineate the above team cognitive skills. The argument is that deliberate practice is shared between team players as individuals and at team level, and that team cognitive skills are socially negotiated skills in the sense that they are developed within a specific sport context of team training.

Concentration

Full concentration is one of the characteristics of deliberate practice (Ericsson 2006, p. 696). The point is that the quality of team training rests on the extent to which all team players are performing in a concentrated way. Katrine and Mette voiced their concerns that
their shared practice is sensitive to the degree of concentration and focus with which the training is performed. When the players perform in a way that is not fully focused and concentrated, then they do not put all their efforts into play, which influences the overall training intensity and quality.

The players explained that they can read each other’s concentration directly in facial expressions and gestures.

I believe that it is important with gesturing, eye contact and facial expression. Well, when you look at people you see whether they are [mentally] present or not, whether they are completely focused, and when you say something to them there is direct contact rather than if you say something to somebody she looks away and stares into the floor. (Katrine)

I sense that if things are going well people communicate better and you establish eye contact. It is also physical that you touch each other or make a high five […] This adds more [to the concentration] than if somebody runs next to you but is completely wasted [mentally]. (Sofie)

We also observed that an important mean for players to show that they are highly concentrated is by fighting determinedly for the ball or throwing oneself forcefully over the crease when shooting. The players seem sensitive to and directly affected by the expressed level of concentration in each other’s behavior. Consequently, each player’s concentration seems to be affected by the relationship between the players in the specific training context.

Our findings suggest that one of the key challenges for the team is to avoid a situation in which team performance is arrested at the level where some of the players perform with reduced concentration and effort. The coach can elevate team concentration during training for instance by punishing the losing team during practice through push-ups etc., but also the players can actively increase the team’s concentration. For instance, Katrine tells about the importance for the team of having players such as herself and Mette that can “lead the way” and are capable of motivating others at training. Katrine exemplified how Mette often increases the intensity by repeatedly yelling to the others:

It’s rather funny with Mette. Even though we play on two goals in training [then she yells]: “We must win!”, ”Come on!”,”They should not score now!” and things like that. (Katrine)

Furthermore Katrine exemplified how the experienced players in particular can enhance the overall concentration in training by deliberately exaggerating certain gesticulation for instance when they fight for the ball. This also exemplifies the experienced player has to embrace the other players and compensate for her team mates in order to facilitate her own performance, maintaining high quality training and ultimately increasing her chances of winning games.

Thus, maintaining high quality in training requires a team effort in which the players actively engage themselves, influencing each other in maintaining high levels of concentration, and holding each other accountable in their efforts to become a winning team. This shows that team concentration is not just a mental state inside the individual players’ heads, but something that is constituted in the embodied interactions between the players. The
experienced players play an important part in maintaining concentration in training by being role models that exhibit high concentration necessary for maintaining high quality training.

**Feedback and Role Modeling**

We will discuss feedback (mainly verbal but as mentioned earlier also nonverbal) from the coach and role models. As already mentioned the more experienced players guide and give the other players feedback. The deliberate practice framework emphasizes that aspiring experts’ learning is often facilitated by verbal feedback from a coach who makes athletes aware of the aspects that they need to improve, but this framework does not describe what makes the guidance and feedback an efficient learning resource other than its propositional substance. Our study indicates that the style of the relationship between the guiding player and receiving player influences the effectiveness of the verbal feedback. Sille (the younger player) states that her relationship with Mette influences how she perceives Mette’s guidance:

> We played a game in which I was substituted for Mette and [then] she guides me in what I have to do and when I have to do it before I enter the court. This way I can really use it [the guidance] and feel confident with what I’m doing. When she tells me to do it, then I have the courage to do it. That is to take a step, go forward and take the good player [in front of me] out. (Sille)

However, Sille experiences Mette’s guidance as “an extra hand” that enables her to be confident in her operations.

This is an example of verbal feedback and imitation as a result of the relation that Sille has developed to Mette over the years. Throughout the years she has followed Mette’s games on television and she admires Mette’s style of playing. She mirrors herself in Mette, because she has the same build and the same defensive position in the team. Thus, Sille sees Mette as a kind of role model.

Mette’s guidance highlights critical aspects which she herself might have encountered on the court and which Sille must be aware of in her defensive play. However, the guidance seem to assist Sille’s performance, not only because of their content, but also because they are put forward by Mette who – in Sille’s eyes – “is so experienced and on top of things, so I trust that what she tells me is correct.

And I haven’t experienced it not being correct yet” (Sille). Sille’s actions seem to be backed up and supplemented by Mette’s richer experience, because her perception of the guidance is influenced by her practical and imagined relationship to Mette. This guidance seems to modify Sille’s practical relationship with the particular defensive context, and make her capable of performing timed and confident defensive operations. Since Mette is a role model for Sille her words carry a greater weight.

This could be interpreted an instructional nudge which according to Sutton become a form of “scaffolding that support[s] the embodied rebuilding of action” (Sutton et al. 2011, 93).

The interaction between Mette and Sille show that the social context (including its relational significance) is important to the feedback. For instance reflecting upon imitation Sofie mentions the importance of the experienced player caring for her learning:
Well, she [Katrine] approaches me, positions herself in front of me and has eye-contact with me. She tells me what to do and how to do it and exemplifies how she does it. ‘You can do it like this’ and she does it and I imitate it, if I can. She does this, not just because I want it, but because she has an interest in teaching me to do it, because she also wishes me to do well. (Sofie)

This indicates that the guidance and feedback given by experienced players are more likely to facilitate learning when the inexperienced player feels that the experienced player is attuned to the inexperienced player’s challenges. Katrine’s empathy through Katrine’s behavior is directly experienced in the form of eye-contact and attempts to model movements for Sofie to imitate. This behavior seems to grant Sofie a sense of belonging in the team and make her feel that “it is okay to make mistakes” and that “no one looks down on you because you make a mistake” (Sofie). As a result, Katrine’s behavior stimulates Sofie into risking facing a process of modeling the guidance with her own actions, even though this may very well include failing and stumbling.

In general, Ericsson’s notion of expertise as task adaptation through deliberate practice focuses the unidirectional transfer of knowledge, e.g. when a coach passes on his/her guidance and feedback to an athlete (Ericsson et al., 2007). But as exemplified by Mette and Sille both players might have opportunities to learn from each other:

When you need to explain something to others, then you become able to understand it better or become focused on it again. So when I tell Sille: “You have to remember to raise your arms before you move ahead!” ... well, then I become conscious of this myself. (Mette)

In the process of guiding Sille, Mette gets an opportunity to reflect on her own play and movements: “If she did it like this, she would perform better. But hold on! That might also apply for me. It is a bit easier to see what others do wrong” (Mette). In this way, feedback from a role model to a novice is actually a two-way street where guidance is mutual and not a one-way transmission of knowledge from the experienced to the inexperienced player. In other words, when Mette observes Sille’s performance, she identifies with Sille’s situation and she temporarily perceives the play from Sille’s perspective. This enables Mette to give Sille a guidance, which is deliberately and emphatically tailored to Sille’s situation. At the same time, Mette herself wins useful experience that influences her corporeal understanding and improvement of her own abilities as a handball player.

Team Coordination and Team Situation Awareness

During the structured tactical training the players’ shared plan and shared situation awareness is highly influenced by the coach’s suggestions. This does not mean that team members’ team cognition is fully determined by the coach’s tactical plan. The tactics must still be mediated by the players’ interactions and the dynamic response of the game itself. But the orchestration (Jones and Wallace, 2005) of the situation and the supervision by the coach guides the players’ actions and encourage them to perform the tasks advanced by the coach. In this way, structured tactical training serves to reduce complexity and contingency of the game and the players’ exposure to alternative options:
It is important that you do the same things [over and over] in order to gain confidence that she [the team mate] is all set when needed because then I can make blind passes or make it hidden [e.g. fake shots]. This means you can add an extra layer on top of what you normally do if you have confidence [in your team mate]. (Mette)

In the interview quotation Mette reflects upon the importance of repetition in tactical training. But thought must be acknowledged that the predesigned and rehearsed play patterns are an essential part of the handball game (similar to American football, but opposed to the more free-flowing game of soccer), reduced exposure in the training situation has a drawback: In structured tactical training the players generally know their team role and the team task, but handball is a dynamic game and require in addition the development of team situation awareness through exposure to the complexity and contingency of both planned and unplanned game situations. This is why structured tactical training is combined with match training.

Parts of the match training consist in playing full-fledged matches, where all the players strive towards the overall goal of winning the game. In the engagement with the others – team mates and opponents – they negotiate and create the flux of the game by pursuing the chances of one’s team. In many situations this requires that the players negotiate the task and interpret the situation with the other team players while playing. The players must actively coordinate with their team members in order to guide and support each other’s actions of moving or recovering the ball. At the same time, the players coordinate with the opponent team in an attempt to misguide and interrupt their actions of moving or recovering of the ball. This means that the realization of the task of scoring and defending becomes co-constituted by the participating players in the very process of pursuing the task. In other words, in match training the players are encouraged to work with their situation awareness e.g. ability to make sense of each other’s actions and co-constitute meaning by tailoring shared patterns of movement in the moment.

**Shared Understanding**

As described above Randers HK is amongst the best three teams in Denmark. The players have all practiced handball over many years, and they are shaped by and share the specific practices and norms of the handball culture. However, each player has also developed personal and specific styles of playing. Besides being specialized in certain positions (e.g. goalkeepers, playmakers, pivots, wings, left and right back courts) the players demonstrate distinctive skills, for instance Mette is skilled at anticipating events and subsequently she has excellent timing (particularly in her defensive interventions). Katrine has an ability to claim responsibility in stressed situations (particularly in a taxing offensive) and Sofie is known for her fast speed and acceleration in the offensive play. Intertwined with their individual expert performance the players have developed team cognitive skills that allow them to coordinate their actions. Individual performance depends on a team coordinated response as exemplified by Mette, whose ability to anticipate her opponents’ intentions and time her defensive interventions is entirely dependent upon the actions of her team mates:

I get a little more passive if I’m unsure whether they [the team mates] will mark [the opposing player], because when I move as far forward as is often required they [the team
mates] have to guard the pivot behind me [...] On the national team, as an example, I [felt] more confident that Tina [pseudonym for a player on the national team], who I had played with for a long time, would cover the pivot because she knew I would do it [move forward]. (Mette)

Thus, one of the main concerns in training the team is to develop a shared understanding (i.e. team cognitive skills such as team coordination and mutual confidence) which enables the players to time their operations during training and games. The case study suggests that shared understanding develop when the participants deliberately train how to engage in shared enterprises such as doing well in highly competitive training sessions or tournament matches. As seen in the foregoing, the shared understanding also depends on the verbal cues and common schemata that team players develop about the game. In saying that these activities are deliberate we also imply that players engage in negotiations about the meaning of team tasks and the team’s shared movement repertoire. This way the team members develop a shared understanding that supports their ability to operate as an expert team. For instance, Katrine emphasizes the importance of the players taking part in the orchestration of the team’s interplay and attempting to “make the others perform well”. But it is not only a matter of performing well, but also developing a shared understanding of what it takes to train in a team that participates at the highest level. Katrine describes how she as an expert sometimes needs to overact the intensity and seriousness in routine training for instance by yelling and inciting the team “for the sake of the young ones”, because they need to be introduced to the shared understanding of how you fill the position as first team player in Randers HK. In other words, expert players need to teach the younger players the tasks and responsibilities of the high performance team member during training as well as games. In addition, Sofie says that a team’s adaptability, for instance to difficult opponents, is developed when a player “not only has an eye for her own opportunities in the game, but also the opportunities of the others”. This calls for a dynamic expertise that builds on the perceptual skill to pick up on the opportunities of others and enact these within the team. Such an expertise we may call shared understanding is highly dynamic because it entails appreciation and anticipating the movements of one’s team mates in relation to the movements of the opposing team, and it entails recognition of the players’ ability and necessity to teach and learn from each other. In summary, shared understanding is deliberately practiced in Randers HK by means of mutual apprenticeship among the team members.

CONCLUSION

We suggested the notion of shared deliberate practice to account for the findings about learning and team training in an elite handball context. This case study is relevant in guiding successful handball training in terms of producing sustained concentration, the importance of reflections and analysis, the continual quest for improvement and the importance of structuring the practice. The theoretical implications for research on deliberate practice are fourfold:

1. Deliberate practice in team sport is a shared activity. In his deliberate practice framework Ericsson focuses primarily on the deliberations of the individual athlete and the
coach when accounting for how an athlete develops expertise. But this study shows that team
cognitive skills and teamwork plays an essential role in accounting for the acquisition of
expertise. We have argued that deliberate practice as not fundamentally a solitary and non-
social activity. In team practice, developing expertise is about deliberately asserting oneself as
a team member whose goals and situation awareness are shared by other team members. In
and out of games, players need to see other team members as competitors that can make
themselves better as well as mates who can fulfill the objects of the team (namely winning).

2. Both structured tactical training and match training are deliberate practices. As a
deliberate practice, handball training is structured. Training is comprised of specific exercises
that aim to train the players’ mutual understanding during training and in games. The
exercises are geared not only to the individual player’s movement but to entire patterns of
movement shared by the players encompassed in gradually incorporated tactics and strategies
in the players. From the point of view of Ericsson’s concept of deliberate practice, and given
the importance of accomplishing a shared understanding of tactics in elite handball, it is
therefore surprising that this study shows that only half of the training is devoted to highly
structured tactical training. However, if the training is too structured it can hinder the players’
development of interactive skills such as exercising adaptability and making mutual decisions
on the fly. Therefore the players need to train in game-like situations – regardless whether the
players are novices, experienced or a mix as in this case study – in order to learn to deal with
the unpredictability of the game.

3. Concentration mediates team cognitive skills. Ericsson emphasizes that deliberate
practice is characterized by the athletes working with their training in a concentrated way.
Similarly, our results underline the importance of handball players training and performing in
a highly concentrated way as they strive for excellence. However, on the basis of the study,
we argue that concentration is not just a mental state inside the individual player’s head, but
also something that is constituted in the embodied interactions between the players. The
players must remain alert and ready to adjust to the other players and developments in the
game, and all the players must be concentrating this way for the training to be efficient. Thus,
an important aspect of the team’s shared deliberate practice is to be engaged in the team’s
efforts to build on their shared situation awareness of the task at hand. In this way,
concentration is a prerequisite for team situation awareness as well as a result of team
training.

4. Feedback and role modeling mediate team cognitive skills. The deliberate practice
framework underlines the importance of verbal feedback passed on from the coach to the
athlete. Similarly, our study shows that the players’ learning processes are stimulated by
verbal feedback from the coach when he makes the players aware of elements in the game
that need to be improved. However, the framework only vaguely describes the interpersonal
bears on the link between feedback and learning. From the results of our study we may
argue that the learner’s efficient implementation of the guidance depends on the learner’s
relationship to the guide that gives the verbal feedback. For instance, when an expert player
acts as a trusted role model for a younger player the expert’s feedback is picked up more
detailed and in-depth by the younger player. At the same time, the efficiency of the verbal
feedback seems to be closely connected to the guide’s sensitivity to the player. Moreover,
mutual feedback is a common feature among the players, and we may argue that when a
player guides a team mate she becomes more responsive to manners in which she can
improve her own performance. Thus, being engaged in an apprenticeship with a team mate,
the player puts her own abilities up for negotiation in so far that guiding the team mate from the perspective of her own abilities may help her improve her own performance.

What are the practical implications of the findings? From an applied perspective, this study points to the value of seeing team sport as necessitating shared deliberate practice. Team players need to train shared understanding and learn how to negotiate the coach’s orchestration of the game plan. The above mentioned findings warrant inclusion of shared deliberate practice as part of basic coaching courses on team training. Specifically, they may lead coaches in high performance team sports to use experienced athletes to engage in verbal feedback and being explicit role models to less experienced players. Furthermore, the study lends support to recent recommendations regarding supportive features characterizing the positive relationships between the participants in successful athletic talent development environments (Henriksen, 2010). However, this study is limited by the focus on one specific sport, and we must underline the circumscribed transferal of our results to other sports. Future research is warranted in other team sport context than handball to spell out what characterizes shared deliberate practice in these social contexts.

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