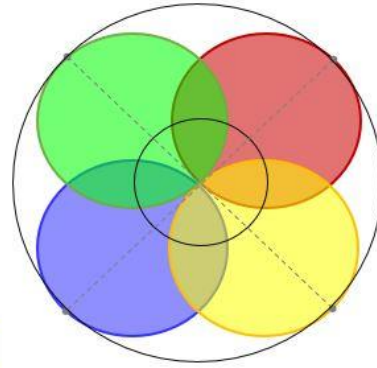


# Blended Intelligence

Unleash the brilliance of the team



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## Coaches' Decision Making

### Introduction

How do coaches choose what the right course of action is whilst making non-deliberative decisions? When initially considering this question a coach might answer that it was intuition, that they just knew what to do and went with their gut. When we engage with the literature or quiz coaches on their decision-making it is clear that what appears to be art or reflex is a far more complex process. A coach's experience is developed over years through sports participation, education, coaching practise in different environments and contexts, and finding coaching solutions to problems through trial and error practise. This is honed and stored in memory to be called upon instantaneously as and when required in different circumstances.

The margins between a novice and expert coach may be measured in a number of ways. What each perceives or recognises to be a coaching problem, how quickly this is then identified and the potential solution offered all hint at cognitive activity (Lyle 2003). The coach's capacity to reflect on, acquire and store new solutions to problems is an essential characteristic of intuitive decision-making. In the following research report we will explore some of the literature on expert coaches decision-making, the cognitive processes that occur and what shapes the expertise that coaches utilise. To do this we will compare the decision-making processes of a relatively novice and experienced strength and conditioner whilst in a coaching situation.

## Literature Review

Non-deliberative decisions are of the moment (Lyle 2003). A coach will describe them as intuitive or tacit and an observer may describe them as an art form (Schempp, McCullick and Masson, 2006). For researchers, this explanation of 'hot action' has until recently stifled investigation into the area. Salmela (1995) acknowledges 'the tacit nature of much of the coach's knowledge framework' (cited in Lyle 2002, p132) but believes that coaches can verbalise them.

Effective coaches are described as having declarative and procedural knowledge that relate to sport specific, scientific and pedagogical principles and is characterised through professional application with athletes in different contexts (Cote and Gilbert 2009; Lyle 2002). Schemata are mental models or knowledge structures that are built up through a coach's experiences (Lyle 1999). Domain sensitive knowledge structures (schemas) are activated when the coach recognises a familiar pattern 'holistic snapshot or frame' that in turn trigger command solutions (Lyle 2002) or recognition primed decision (Lipshitz, Klein, Orasanu and Salas 2001). This differs from scripts where the coach will recognise a combination of variables that relate to an unfolding event or process, a threshold of incidents or a particular catalyst will allow the coach to quickly intervene as they have seen the outcome of this action before (Lyle 1999; Lyle 2002).

*'The coach constantly scans the coaching process-related activity. Situational analysis, based on pattern recognition and key triggers, leads to diagnosis and hypothesising future events.'*

(Lyle 2002, p138)

Whilst scanning the environment the coach will read triggers and cues within the performance that will rapidly focus their attention from a wide to narrow scope. This can be thought of as the coach instantaneously accessing a script or schema and calling the saved memories into their working memory to utilise in the situation. When the coach does this in a slow, conscious and more deliberative fashion, they will be eliminating possible outcomes in the performance observed to ensure they make the correct decision. If the intervention is rapid, tacit or intuitive it is likely because the coach has instantaneously recognised the pattern through a threshold or catalyst of trigger's and cues, narrowed the options subconsciously and can make a decision with immediacy. It is argued that this may be the mark of an expert coach.

In an effort to understand and explain decision-making a number of researchers have proposed different methods and theories. Some of these have been criticised because laboratory settings are too clinical to explore real world decision-making (Gilbert, Trudel and Haughian 1999) and until recently, has failed to take the characteristics and context of the situation into account (Cote, Salmela, Trudel, Baria and Russell 1995).

*'Naturalistic decision making (NDM) is an attempt to understand how people make decisions in real-world contexts that are meaningful and familiar to them'*

(Lipshitz et al 2001, p332)

NDM has contributed to our growing understanding of how decisions are made when uncertain dynamic tasks, multiple events/situations, various feedback loops, multiple or ill

defined goals, graded decision complexity, time constraints and pressure exist in the environment (Lyle 1999). It has helped to identify expertise as a key element in sizing up a situation and generating options. NDM has uncovered recognition-primed decisions, coping with uncertainty, team decision-making, decision errors and decision aiding and training through its research and cites situation-action matching, context-bound informal modelling and empirical based prescription as some of its essential characteristics (Lipshitz et al 2001). NDM is argued to be very useful studying behaviour in the unpredictable and messy environment in which the sports coach exists (Lyle 1999).

By attempting to understand coaches behaviour and decision making a land mark study was produced by Cote et al (1995) where using open ended question with 17 expert gymnastic coaches they devised a conceptual model of expert coaches knowledge. They concluded that knowledge under specific headings in different situations was used to develop mental models. Jimanez Saiz, Lorenzo Calvo, and Ibanez Godoy (2009) interviewed 8 elite Spanish basketball coaches in an attempt to define the stages of development and the formative or training process that expert coaches go through. It was highlighted that coach development was most influenced by imitative and reflective practise and that training and decision-making was driven through the coach's own experience and personal reflection, a finding supported by Vergeer and Hogg (1999) in their work looking decisions around injured gymnasts. Gilbert and Trudel (2001) argue the coach's role frame is essential to reflection and influenced by access to peers, coach's stage of learning, issue characteristics and the environment.

If our non or semi deliberative decisions are reached by rapidly accessing a 'filing cabinet' of stored memories and intervention is based on what we predict or know to happen through experience and reflection, how will a relatively novice and elite coach respond to exploration of their coaching decisions?

## **Method**

Two strength and conditioning coaches (n=2, age = novice 24 and elite 52) were asked to assist in this research paper based on their number of years of coaching experience (novice = 4 years part time; elite = 13 years full time). Elite coaching has been defined in some papers as having more than 10 years experience in varying contexts and environments (Cote et al 1995; Jimenez Saiz et al 2009).

Non-structured interviews were carried out and recorded individually on separate occasions with the coaches. They were instructed to recollect two situations where they have had to make a decision and then through conversation, open ended questions asked. Each coach was asked to recollect with honesty what he did and not what he thought would be the correct course of action (Lyle 2003). The interviewer took notes throughout the interview and then tagged responses under certain headings whilst playing back the recording at a later time.

## **Results**

Below in table 1 are the situations that the novice and elite coach highlighted as their action decision scenarios.

**Table 1:** Novice and elite coach action decision scenarios

<b>Novice</b>	1	The athlete was performing snatches from the hip and stopped between reps because he was over thinking the coaching points. I gave him an outcome goal rather than a process goal.
	2	The athlete was performing back squats, the technique was breaking down but I chose to let him continue regardless of this.
<b>Elite</b>	1	I chose to have the athlete perform clean pulls from the blocks to assist in his technical development of the lift
	2	The athlete appeared in the session with a sore ankle, I had to make a decision on what would be appropriate for him to do

Highlighted in the description are the problem and decision that the coach made. No context regarding the environment, the athlete or their programme is referred to.

Below in table 2, are the tagged responses to each interview. The interviewer was looking for language associated with memory recall, experience, context, and environment and are summarised in the headings.

**Table 2:** Novice and experienced coaches responses and explanation for their decisions

	<b>Novice</b>		<b>Elite</b>	
<b>Action decision</b>	1	2	1	2
<b>Pattern</b>	I	II	IIII	II
<b>Recognition</b>				
<b>Situational Analysis</b>	II	II	IIII	III
<b>Option Narrowing</b>	II	II	II	II
<b>Key Triggers</b>	I	II	IIII	II
<b>Degree of certainty over solution</b>	I	I	IIII	III
<b>Reference to previous examples</b>	II	I	III	I
<b>Coach's experience</b>			III	IIII
<b>Contextual information</b>	I	II	IIII	III
<b>Totals</b>	10	12	32	22

The results show that the elite coach (54) made reference to some of the language associated with NDM more frequently than that of the novice (22). What also emerged

through the interviews was that the novice coach focused on the task where as the elite coach focused on outcome and context. Both coaches made reference to the athlete, the environment and the situation to qualify their responses.

## **Discussion**

The action decisions that both coaches highlighted were semi deliberative as opposed to non deliberative (Lyle 2002) not unlike the slow interactive script model (Lyle 1999). In all cases the coach had a short amount of time to consider their decisions allowing them to retain control and manage uncertainty (Lyle 2002). S&C coaches work with closed chain skills which they develop significant 'in depth' technical models on. Both coaches referred to these technical models and how they were developed through out their interviews making reference to their own participation in weight lifting, observation, workshops and formal education, coaching and discussion with peers and mentors. In terms then of pattern recognition and the issues that they observed, they were confident of the decisions that they made.

There were issues with the data collection process. The non-structured interviews and coach's self-selecting of 'action decisions' resulted in difficulties in keeping the accounts focused and on point. Lyle's stimulated recall (2003) where situations were video recorded and then played back to allow coaches to recount their decisions seems like a better method for ensuring that the decisions discussed were not hypothetical and recounted accurately. This coach's account through story telling may have given better results relating to NDM language. Using semi-structured interviews (Gilbert and Trudel 2001) that were



geared towards focal points around the action decisions might also have allowed for better analysis.

The literature states that elite coaches can narrow focus quicker through rapid situational analysis with accuracy and speed and as such can take action quicker. The novice may need longer to come to a decision relying on a greater number of triggers and cues. This might be supported in the frequency of references made by the elite coach with reference to pattern recognition (Lyle 2002). It is also stated that novice coaches will tend to focus on the task in hand as opposed to the outcome or context, this could be seen in the novices account for the decision with the athlete who was squatting, he wanted him to complete the set but failed to acknowledge that strength development required an overloading stimulus to create adaptation, which will result in technique breakdown. The elite coach, when discussing the athlete pulling from the blocks referred to a part-whole method of learning, the athletes' novice status and developing technique, which can then be loaded. This underlines the increased number of factors considered by the more experienced coach.

Both novice and elite coaches made reference to the athlete, environment and individual in their responses but the novice gave less context. In the literature it is stated that experienced coaches use contextual information and routines, mental scripts, management structures and instructional cues better than novices (Lyle 1999). This is illustrated in the experienced coach's use of the pull from the blocks in fixing the timing of the clean, he was very clear that this was an effective means of developing proficiency and elaborated on context, this is in contrast to the novice coach who was less confident explaining his reasons for either of his interventions.

Klein (1990) states that experts perceive and see deep meaningful patterns in their domains (in Cross and Lyle, 1999, p217). This is nicely illustrated by our expert coach who said that in his mind, he could slow down time, it was clear to him where the issues were and that this was because he has spent so long observing these techniques, the process is not confused by the detail. Our novice explaining the decision to give an outcome rather than process goal whilst coaching the snatch admitted it was because his mentor had tried this the previous week. Novices tend to represent a problem at the superficial level and tend to focus on the choice of solutions (Lyle, 1999).

Reflective practise (Gilbert and Trudel, 2007) at the novice level allows the coach to build up a repertoire of scripts and schema that can be drawn upon at a later time. Although there was very little differences in the number of reference made to previous experience by novice and elite coach it was clear by the richness of the answers that our elite coach had had more exposure to similar circumstances in his past. At one point in reference to modifying a programme for an injured athlete he said, 'I would not ask an athlete to train with pain, I know it would lead to a more chronic problem because I have done it myself and seen other athletes do it'.

The concluding point relates to our novice coach's point regarding learning from peers and his mentor (Cushion 2007). If we are to agree that our experiences shape our decision-making, then the mentor has a key role to play in developing the novice. They need to understand decision-making and ensure they convey their reasoning for any action they take. Our novice is clearly informing his practise through imitation (Lyle 1999) rather than a

deliberate choice. This is completely healthy as it is this trail and error approach that will build his experiential knowledge.

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