

UNDERSTANDING DECISION-MAKING IN RUGBY

By

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When it comes to sport performance, many of us have used the old analogy of a four-legged stool to help explain to players what makes up a complete sporting performance. The usual 'legs' are the technical, tactical, physical and psychological aspects of performance. Some people add things like character, team dynamics, leadership – but whatever, we all know that players need to be strong across all aspects of the sport performance spectrum. Decision-making is at the heart of the tactical 'leg' and many coaches have had difficulties over the years trying to get players to take better options, both strategic decisions regarding the sort of game plan to follow or when to implement different moves, and also 'during-play' decisions (the more instinctive or intuitive type) like when to kick, when to take a man on, when to pass etc.

Improving skills, which is largely about the application of biomechanical and rugby skill knowledge, is a tough enough job at times, but it's one that many coaches feel they have got a handle on – that's if they have the time to carry out effective skill error detection amongst all the other tasks they have to carry out. I think you would all agree

however, that teaching decision-making is a tougher nut to crack. These days, players have not only to make split-second decisions in the heat of battle (as has always been the case), but they also need to cope with increasingly complex pre-sequencing of moves and the shouted commands of players around them, who may be 'calling' something different from what was expected. While moves and sequences are pre-planned, players are also expected to respond to the ever-changing situations of the game. If a sequence is instigated and unexpected space opens up or a mismatch is created, players are expected to take advantage of it. From a decision-making point of view, I think things have become more demanding for players of recent times and I think we need to do some careful thinking as to how, as coaches, we can best help our players to become better decision makers.

Declarative & Procedural knowledge

To start with, I'll give you a tiny introduction to memory and knowledge acquisition. This is not an attempt to turn you into a cognitive psychologist,

but because I believe understanding this goes some way to understanding how to improve decision-making in your players. Simply speaking, there are two different types of knowledge that we learn as we grow up. One is declarative knowledge and the other procedural knowledge. Some theorists also refer to strategic (or conditional) knowledge, but I won't go into that for the purposes of the exercise.

Declarative knowledge refers to knowledge that you can access from a fact-oriented 'database' about rugby (or any) situations. Declarative knowledge is knowledge about facts and things. For example:

- Understanding that it's normally better to keep the ball in hand when playing into the wind.
- Knowing that if the opposition has huge, lumbering forwards and your pack is smaller, your team is best to play it out wider and try to run them around.
- Knowing that Colin Meads is a New Zealand rugby legend.
- Knowing that if you've got an attacking scrum five metres out, on the left-hand side of the field and your number eight is very quick, then a 'Lefto' move will have a high probability of success.

Procedural knowledge is processed by a different system and in a different part of the brain. If you ask Christian Cullen when (under what conditions) he would run the ball back out of defence and when he would pass or kick it, he would probably struggle to tell you. And he wouldn't be alone, because this information is stored in his procedural

memory and is accessed primarily through actions and reactions rather than words. Procedural knowledge is knowledge about how/when to perform activities. It is filed away as a series of cues (or stimuli) and responses. For example:

- Knowing that when we put our shoes on, we need to tie our shoe laces (and how to do it).
- If we are driving and a dog runs from the side of the road, we swerve to avoid it.
- When a halfback hears the referee say, "Crouch and hold, engage," he feeds the ball into the scrum.
- When a fly-half receives the ball from the scrum half standing in his own in-goal area, he kicks for touch.

Analytical and intuitive decision-making

Following on from this, we can make a link between the two different kinds of knowledge and two different kinds of decision-making (DM). There is a range of theories on DM and different theorists use different words but, for the purposes of this article, let's say that there are basically two different kinds of decisions that we need to make when playing rugby. We will call the first one *analytical decision-making*. This is a strategic or tactical type of decision where a player has time to weigh up the situation, consider the various options open to him or her, perhaps even talk to someone else about it, then make the decision and act on it. An example of this would be a captain deciding (while there was a break in play) whether the

team should stick with the game plan decided pre-game, or make a change because of the prevailing match conditions. Another example would be a fly half deciding what move to call when waiting for an attacking scrum to form.

The other kind of decision-making is *intuitive decision-making*. These decisions are made when a quick reaction is required, when there is no time to think about things, but when the player just reacts to what he sees, hears or feels. For example, when a fly-half intends to run and sees the defence is holding back out wide, he passes the ball. Another example would be when a centre, intending to pass the ball on, sees the defence is up-flat and impenetrable, so he chip kicks for the goal line for his wing to run on to.

Some researchers have suggested that analytical and intuitive DM are not different concepts but that they exist on either end of a continuum:

Analytical _____ Intuitive
DM DM

and that many decisions are not either one or the other, but more or less of both. Regardless of that, I do believe that considering them as being rather different may be helpful for coaches.

Implications for coaching

I'm sure that you've already figured out that analytical decisions are made using declarative knowledge and that intuitive decisions are made using procedural knowledge. Analytical decision-making is a rational, calculating activity – it is

essentially scientific in nature. Intuitive decision-making is an **arational** (but definitely not **irrational**) sensing activity which is more artistic than scientific in nature. So what are the implications for coaches when it comes to improving the decisions that players make?

Teaching analytical decision-making can be achieved by talking about the issues, explaining what the best options are in a range of situations and why, and by asking the players questions to test awareness and to ensure that they understand what you've been teaching them (using a questioning approach to coaching). It is also important to teach players how to make these decisions – that is, what factors should they consider and how should they go about making their decision. As the players test this knowledge in game situations, it will become more deeply understood and their effectiveness at making these analytical sorts of decisions will improve. The more the players carry out these decisions during a game or in practice, the more experienced and more expert they will become – guided and assisted, of course, by expert coaching.

How, then, do you improve players' ability to make intuitive decisions? Well, it may come as no surprise to you that you can't effectively teach intuitive decisions by talking about them or by showing the players what to do. Simply put, players tend to learn how to make intuitive decisions by actually making them in match situations and simulated match situations. In other words, they learn by experience. You could argue that intuitive decision-making is a skill that cannot in fact be **taught** as such (as in provided by the coach to the player),

but rather that it can only be **learned** (as in gained by the player by his or her own effort). The late, great Italian educator, Maria Montessori, believed that children learnt most effectively if directors/directresses (she would not use the word teacher) created a rich environment and guided the children to self-discovery. This is how intuitive decision-making is best learnt. Just substitute player for child and coach for directress, and you can use the Montessori approach as a model for rugby coaches to teach intuitive DM. As coach, you could consider yourself a guide to player self-discovery.

The speed and accuracy with which each decision is made is influenced by several factors, including:

- The number of decisions that need to be made;
- the number of responses players have to choose from;
- the time available to make the decision;
- and finally, the costs associated with making incorrect decisions.

There has been some interesting thinking about DM coming out of the US army in recent times, provoked by US psychologist Gary Klein's naturalistic decision-making theory. The following is from a thought-provoking article written by Major John F. Schmitt, USMCR, writing about DM in the US military:

“The essential factor in intuitive decision making is experience. This is an extremely important point. Experience is the thing that allows for the situation assessment that is at the

heart of intuitive decision making. Experience allows us to recognize a situation as typical--that is, within our range of understanding. Although each situation is unique, experience allows us to recognize similarities or patterns and to understand what those patterns typically mean. If we have sufficient experience (and have learned by it) we do not need to reason our way through a situation, but instead simply know how to act appropriately. In general, the greater the experience, the greater the understanding--like the chess master who (studies show) can understand the "logic" of up to 100,000 different meaningful board positions. It is this experience factor which, more than any other, facilitates the pattern recognition skills or coup d'oeil that are the hallmark of brilliant military minds.”

There is little conceptual difference between a soldier making an intuitive decision in battle and a rugby player making an intuitive decision on the field. For the soldier, the stakes are more than somewhat higher than for the player – if he gets it wrong he may die, whereas rugby seldom involves life or death (although at times one could be mistaken!). Nevertheless, the conceptual similarities remain. Clearly, performers who can predetermine what event will happen and when it will happen will respond faster, and therefore coaches need to teach learners effective visual search strategies. There is a large body of research out there that shows that experts are much better at picking up early cues that trigger their response than are less skilled performers. Often, the experts' skills are not any better, they just pick up the cues earlier and are

therefore able to get cracking with their response earlier. I don't intend to go into this here, but you ought to be able to give your players clear indications as to what to look for in order for them to respond to cues more quickly.

So how can coaches provide this experience which is so important? Clearly the answer is through match simulations – using a ‘game sense’ approach. Small-sided games, leading up to fully opposed sessions, should be the order of the day. The more pressure that can be created the better, as this is what happens in a game. Obviously it is essential to ensure that the skills of the players are well enough developed to carry out the options selected. The coach should guide the players during these sessions, again by taking a ‘guided discovery’ approach and questioning players to demand understanding. While it is true that players will learn simply by their own experience and that words are of secondary effectiveness, the learning curve will be higher if wise guidance is provided by the coach. Questions such as, “What were you trying to do when you kicked the ball in that situation?”, “How might you have manipulated the defence in order to create space?”, “What else could you have done to get ‘go forward’?”, “How might you have put the winger into space?”, “What would have been a better option to take then and why?” and “How can we prevent the opposition from getting to our ball when we take it into contact?” will give you a double whammy effect. It will improve the self-awareness of the player and give you an indication as to the player’s conceptual understanding of the correct response to the ball (cue)

provided – so you get feedback all the time from the players.

For those coaches who have access to computer video analysis technology, it may well be useful to sit with players and review their decisions, or to cue the machine to a certain point and ask, “What did you do and why (or what would you do and why)?” What other options were available to you and what would likely have happened had you taken another option?” etc. The development of virtual reality also offers intriguing possibilities in the developing of decision-making skills. At the moment, though, for most coaches the bottom line is reasonably clear. If you want your players to improve their intuitive decision-making ability, you have to give them every opportunity to learn by doing/using some sort of match simulation which enables them to build their DM experience base.

Good luck with it.