

# OBSERVE – ORIENT – DECIDE – ACT THE OODA LOOP OVERVIEW BY MITCHELL SQUIRES.

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The OODA cycle was developed for military applications by Colonel John Boyd. The basis of the principle is to present opponents with sudden, unexpected challenges to which they cannot adjust quickly enough. The side with the slowest responses is defeated - often at little cost to the victor.

Boyd emphasized that strategy should always revolve around changing the enemy's behaviour, not annihilating his forces. Boyd's ideas stress the importance of deception, swiftness, fluidity of action, surprise, shock and attacking the enemy's strategy.

## OODA IN COMPETITIVE TEAM SPORTS.

Any competition is a duel where each opponent:

- Observes (**O**) his opponent's actions.
- Orients (**O**) himself to the unfolding situation.
- Decides (**D**) on the most appropriate response.
- Acts (**A**).

## OODA AND ACHIEVING VICTORY IN RUGBY.

### Question?

Is a winning team the one which:

- Runs the fastest?
- Tackles the hardest?
- Kicks most accurately?

Or is it the one which:

- Reads the game better?

- Makes the quickest decisions to act advantageously?
- Denies their opposition the ability to observe, orient, decide and act?

**Winners consistently cycle through the OODA loop faster** to give them an advantage through the disruption of the opponents' ability to respond effectively.

### What Are The OODA Goals?

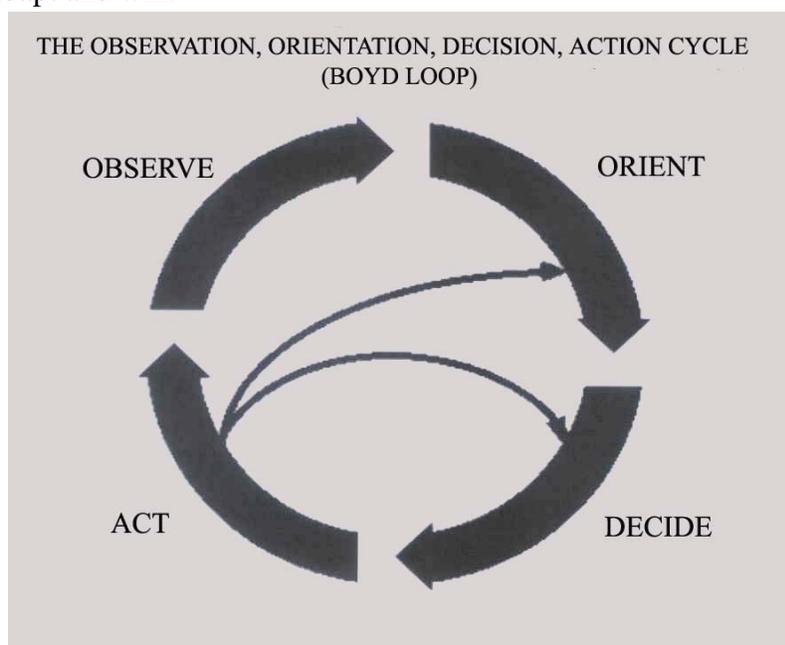
- Complete your OODA loop quicker than the opponents.
- Take action to lengthen the opposition's loop.
- Conduct multiple loops *inside* the enemy's loop.
- Stop the opponent reacting to anything that is happening to him.

### HOW OODA INCREASES THE CHANCE OF WINNING.

OODA cycles create continuous unpredictable change. Team tactics, strategy and supporting structures should be based on the idea of shaping and adapting to this change - and doing so faster than one's opponent.

The opponent's loop can be lengthened by deception, novel actions or fast transient manoeuvring. These isolate the opponent from match reality by destroying his existing mental model and denying him the means to build a new model. (See Orientation diagram below.)

The combination of menacing pressure and an inability to cope with external circumstances causes the opponent to feel any or all of uncertainty, doubt, confusion, self-deception, indecision, fear, panic, discouragement and despair. This destroys his capacity to adapt and win.



## Coaches, Training Systems and OODA

Coaches create systems with practices, game plans and set moves for players to:

- Observe the actions in the game.
- Orient themselves/team-mates in a match by practice, set moves and experience.
- Decide on the best action to take (given observations and orientation).
- Ultimately to act in the manner decided.

Fans and relatives of players most often focus on the action in the game and do not focus on the observation, orientation and the decisions necessary to execute brilliantly.

### Coaching Benefits.

Understanding and applying the OODA loop enables coaches to:

- Create powerful but flexible game plans.
- Create the cohesiveness needed to attack and defend.
- Prepare individual players to think and react to the needs of the group.

## COACHING PHASES USING OODA.

### **Observation Phase.**

The opponent observes unfolding circumstances and gathers outside information in order to orient the system (team) to perceived threats.

Considerations:

Coaches provide guidance and control via game plans and set moves. The danger is that these feed into observation, which is influenced by each player's -

- Orientation. If you are thinking that confrontation and physical strength (forwards?) are what is important, you will not look for evidence of the need for better decision-making.
- Outside information (reports on the opponents' game breakers, weather etc).
- Circumstances (injuries, game events, opponents' actions).
- Unfolding situations, the success or failure of current ploys.
- OODA cycle feedback.

## **Orientation Phase.**

**The ability to understand the orientation function is the key to success.** It allows a competitor to disrupt his opponent's decision cycle. Decisions and actions are based on observations of the outside world. These are filtered through mental models that orient us to opportunities and threats we observe. Mental models shape and are shaped by the changing relationship between the team and the external environment.

If the opponent misunderstands what is happening around him, he will orient his thinking (and efforts) in incorrect directions and make bad decisions.

## **What Affects Orientation?**

- Cultural tradition - which other sports we have played, the evolution of rugby in your country (e.g. Northern v Southern Hemisphere?).
- Genetic heritage - size, speed, strength, agility, vision, reactions, thinking etc.
- Previous experiences in rugby, sports and life, which begs the question, 'Is more better?'
- Analysis/synthesis - how do we make sense of what is seen?
- New information - each new situation adds to our observations.

The **synthesis side of orientation is crucial.** It is the process by which the players evolve a new world view to cope with novel circumstances.

The challenge in team sports is how to find clarity and cohesion amongst chaos. Brilliant players and coaches are said to have the ability to bring order from chaos, to clarify purpose and achieve victory. This requires correct observation and orientation.

## **Decision Phase.**

The decision-making process is based on observations of the world around it. There are two processes:

1. Analysis – understanding observations via previous knowledge context.
2. Synthesis - creating new patterns of knowledge when existing patterns are not sufficient to let us understand and cope with new circumstances.

When we make a game decision we select from choices based on the situation and pick the best based on experience. Decisions are either explicit or implicit.

## **Explicit decisions.**

- Strategic/game plan: pressure, possession, position and pace.

- Operational - the current moves being run and the desired outcome. (e.g. inside centre hits up the middle to set up second phase and then a pod attack).
- Tactical - quick rucks or rolling mauls? Avoid contact or confront?

The more explicit coaching instructions we give, the fewer decisions are taken by players. In explicit movements, players themselves should be deciding to act quickly and confidently. This develops from practice and experience.

### **Implicit decision-making.**

These are decisions not rehearsed. They are down to individual creativity and judgment. Better implicit decision-making comes with increased experience, talent and confidence. Basic techniques must be mastered so that skills are performed unconsciously to prevent interference with implicit decision-making. (*How can implicit decision-making be developed? See later: Where Coaching Goes Wrong.*)

Practically, implicit decision-making can be found in the following:

- Unusual or creative pass selection.
- Ad hoc defensive adjustments.
- Using different attacking ploys or skills.
- Deceptive moves and dummies.
- Timing and support.
- Game-changing actions.
- Flair.

### **Explicit and implicit decision-making are competing processes.**

Prescriptive game plans create teams of robots running unintelligently through set moves, but too much creativity by too many players can cause the game to devolve into chaos. Coaches and players should aim to find the correct balance for individuals and teams - balancing the explicit and implicit is a judgement call in the OODA loop.

## **APPLYING OODA TO REALITY.**

### **Decision And Action - Where Coaching Goes Wrong.**

The vast majority of drills place the trainee at the final (A) stage of the OODA cycle. This is not realistic. In a match, you go through the entire OODA cycle at each new confrontation.

In traditional drills, you know the 'rules'. You know what type of attack(s) will be used, you know what you will do to respond and you know how and when the drill ends.

Now, place yourself at the 'end of the line', having watched 10 of your fellow trainees attack 3 vs 2 (for example). When your turn arrives, you know exactly what you intend to do and you will have rehearsed it in your mind. All that remains is to **act (A)**. You do not have to assess the situation in any way. Such practices do not mimic the way you will need to perform when confronted in a match.

Outside training, none of the 'setting' is pre-determined. Players must assess each new experience on its own and without seeing anyone else attempt his own 'answer'.

**Successful practices for the game never look as precise or as 'slick' as staged drills**, which removes any anticipation of the event from the setting. Variations of drills which are valuable allow more versatility and force the player to learn adaptive behaviours. This is a far more important lesson/experience than learning six o' clock passing rather than spin passing.

*Drills teach precision of response, reinforce basic skills and increase success rates.*

*Conditioned games teach **limited** decision-making skills.*

High realism training has no pre-determined ending. The opponents **may or may not have hostile intentions** (touch vs contact) and you have to deal with this. It can be very stressful stuff and makes for more complicated drills than pure passing or tackling drills do. Rommel said, "The best form of welfare for the troops is first-class training, for this saves unnecessary casualties."

*When was the last time you suddenly changed an exercise without telling the players?* For instance, turning a 3 vs 2 attack scenario into 3 v 3 without warning? Did they adapt or freeze? Did they complain it was unfair or did they get on with re-orienting to new information?

### **A Method of Quickening the OODA Loop.**

**Decisions** can be the most time-consuming stage of the OODA process, where you choose a course of action based on your analysis. **Hick's Law of Neurophysiology states that reaction time increases by 58% by having only two choices to make.** So you can see the problem that is created by game-styles that have dozens of options.

### **Game Scenario.**

#### Attackers.

You have the ball. There are two defenders in front of you and some support behind you.

#### **Observation.**

Are the defenders:

Flat or ragged/ backs or forwards/1 forward and 1 back?  
Fast or slow/ communicating/ brave?  
Drifting/ man for man/ scrambling?

### **Orientation.**

Does what I see and understand pose a threat, does it involve me? etc.

### **Decisions.**

#### Ball Carrier:

Dummy before contact?

Pass before contact: deep, flat, switch, loop etc?

Kick before contact: chip over, grubber, wiper?

Evade - run wide / preserve space / cut back against grain?

Set up to Tee-bone the defender?

Take contact: hit and spin out of contact, offload, leech, maul, ruck?

#### Support.

Go wide / narrow / behind /deep /shallow?

### **Action.**

Execute the move. This does not consider the defender's OODA loop or how it affects attackers! To take advantage of Hick's Law, we could remove options, e.g. never kick in certain positions. Or we could limit other options e.g. in contact we always try to leech, if not then ruck.

The obvious limitation of this is reduced flexibility of response. How do we tackle this?

We can streamline into a series of cascading 50/50 decisions and train players to run through the option stages quickly.

The attacking situation now becomes:

### Alternative 1 Decision Tree

Stage 1	Stage 2	Stage 3	Stage 4
Carry The Ball	Take contact		
		Keep The Ball Moving	
			Hit And Spin
			Set A Leech
		Static Ball	
			Ruck
			Maul
	Evade		
		Dummy	
		Run	
			Inside
			Outside

### Alternative 2 Decision Tree

Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
Pass the ball	To closest support			
		Planned move		
			Switch	
			Loop	
		Just pass		
			Long	
				Flat
				Deep
			Short	
				Flat
				Deep
	Miss Move			
		Miss one player		
		Miss more than one player		

This method has advantages:

- It is a highly structured response which all team members can learn and understand.
- It is highly adaptive (we could order desirability of chosen decisions).
- If opponents learn this method, we can make our OODA loop quicker simply by practising cycling the decision tree faster.

### HOW DO WE IMPROVE THE O-O-D PHASES?

The loop we have discussed so far is fairly simple and can be applied to a live game and the coaching structures you build.

There is a more sophisticated version. This version tells us that player orientation should factor in a whole lot more.

*Improvement 1: The coach should increase the amount of player education so that decisions are based on a more accurate model of reality.*

Why would a player make a correct decision about passing or contact unless he understood about where space is and how to preserve it? For instance, how many times

have you seen a flanker run across field with a ball from a lineout overthrow until his backs were forced to crab across into the last third of the field's width?

### PRACTICAL IMPLEMENTATION OF OODA IN RUGBY COACHING.

#### **Observation.**

*Improvement 2: Videos can be used to improve observation in players. Stop the action and ask the players what they see. If you don't have access to video, take players under the posts behind the action and ask them the same question. Don't let them just explain about where the ball is.*

Repetition makes it easier for players to recognise playing patterns. New players normally just see chaos. Experienced players should see patterns. Good players should be able to anticipate what will happen next. (Is this true? – Try this on your 1<sup>st</sup> XV.) Experience and training are essential to observation. When they can do this in-game they can play 'heads-up rugby'.

Using the 'Questioning Method' these can be:

### **Basic Observations.**

- Where are the opponents and the space?
- How do the conditions or weather affect play? (Could we use a big muddy patch to stop their centres chasing ours?)

### **More Advanced Observations.**

- What set moves are both teams using? How successful are they?
- What are the strengths/weaknesses of the players?
- What game plans are both teams using? How successful are they?
- How would you explain what you see to your team?

### **Orientation.**

Incorporating what is learned in observation phase into practice can be useful. Continued orientation in practice allows teams to

- Understand the opponent's tactics.
- Adjust to them.
- Build a system for defeating opposition tactics while executing their own.

*Improvement 3: Use the kinds of questions below during a team-run practice.*

### **Basic Orientation.**

- When would you perform a certain action - kicking, set moves etc.?
- Where is the space?

### **More Advanced Orientation.**

- Are the opponents using drift, man-for-man or spoon? How do you beat it?
- How successful are our tactics? Should we adjust? Can we stay unpredictable?
- Does our defence stop their attack? How can we improve our defence?
- Who are their weakest players? Are we running our strong players at them?
- What game plan are the opponents using? How do we beat it?
- Are they changing their game plan in response to ours?
- Can you explain what you are seeing strategically to the rest of our team?
- Does the opponent have other options? What are they?
- What other options do we have? What is the least expected option? Why?
- Are they using deception?

### **Decide.**

Decision-making is crucial to winning. Rugby is fluid, so many adjustments have to be made at once. The more experienced with observing and orienting a player becomes, the more options that player can generate and the faster he make decisions.

*Improvement 4: Stop practices, execute one decision, then re-wind and do it again with a different decision. Change decision makers. Let the players assess how effective the executed actions were. Note who consistently makes the best decisions. Is it actually your captain or your half-backs or someone else?*

### **Basic Decisions.**

- What is the move supposed to achieve?
- In a match, try to think about what I did in practice in this situation.
- Can I apply something from another sport? (American football pass?)
- Can I apply something from a previous game? (Wiper from same position?)
- What does the game plan say to do now? (Does it cover this case?)

### **More Advanced Decisions.**

- How can I beat my opponent?
- How can I adjust to my team-mates' actions?
- How do I deal with the defence/attack against me?
- How do we beat their game plan?
- Can we set up to play multiple phases?
- Can I deceive the opponent?
- How do I give myself or the team lots of choices?

### **Actions.**

#### **Basic Actions.**

- Passing, catching, running, tackling, scrumming or kicking.

#### **More Advanced Actions.**

- Skilfully: Passing, catching, running, tackling, scrumming or kicking.
- Have options e.g. in lineout you can feed off the top or catch and drive.
- Have a team-oriented game plan and play as a team.
- Perform all skills with speed, precision and deception.
- Be creative - use new skills to solve problems or old skills differently.

## **A Match Scenario.**

### **Observation:**

- Penalty on their 5m line.
- There is space out on the left wing.

### **Orientation:**

We are near their goal-line by the right wing touch and losing 25-26. It is almost half time. There is a strong, swirling wind. We haven't lost a scrum against the head. Lineout is patchy today, but when the ball has been caught, drives have been good.

We could kick for points, take a quick tap, take a scrum or kick for a lineout.

### **Decision:**

We look to do a quick tap, but they reorganise their defence quickly. Take a scrum instead.

### **Action:**

Go for a pushover try on secure ball.

How would this OODA sequence change if we were 45m out and why? Or if the No. 8 continually got 1-2m. over the gain line? Or if the scrum ball was under pressure?

## **CONCLUSIONS.**

1. OODA helps players and coaches design training and game plans to emphasise observation, orientation and decision making.
2. The goal of the OODA loop is to run quicker than the opponents.
3. In attack, use speed of execution and deception to prevent the opposition from being able to react to what you are doing.
4. Defensively, take away the opponent's ability to make decisions by denying him space and time.
5. Drive the opponent's actions. Retain the initiative. Make opponent respond to us, not the other way around.

I believe that the application of OODA principles can enhance any style of play. It does not require a tightly structured game plan and it would fit into virtually any style of play

that any team uses anywhere. It is not about the shape and emphasis of a game; it is more about understanding how to best utilise what forces are available to defeat the opposition.