

Take Two Theories

George Fell takes a look at the two contrasting theories in coaching paddling...

This'll be my last 'Coaching Corner' for the time being as I'm handing over to Matt Haydock. This one is about a subject close to my heart, and one that I've held off writing about because I felt I didn't have enough experience or understanding to write a good article. I still feel that way, but here goes!

We're going to take a deeper dive into the two main theories that sit behind us when we coach paddling (or any other kind of movement). From the point of view of an academic they're really different and probably incompatible theories about how people learn to move. If you believe in one, you can't reasonably believe the other.

Information Processing (IP) – it's all about what's going on in your head

These theories describe what goes on in your brain. They treat your brain as acting a bit like a computer and treat learning and teaching movement as being a bit like writing a computer programme. There are several different variations, but they all work something like Figure 1; We receive information and use that to plan our movement. So for example;

● Sense

I'm in my boat and my brain is being constantly bombarded with information from my eyes, my ears, feelings from where I contact the boat, feelings from the muscles telling me where my limbs are pointing and what shape my spine is, information from my inner ears telling me whether I'm spinning or accelerating.

● Filter

Because I spend a fair bit of my time paddling, the filter department in my brain knows it can throw away a load of that information and focuses on the useful fact that my eyes are seeing some fixed objects on the horizon drift slowly to the right.

● Interpret

My interpretation department compares that to experiences it has had before and interprets that as meaning that the boat is spinning to the left.

● Choose

Based on my previous experiences of paddling that cues the choosing department to go off to a folder marked 'turning strokes', find a sub-folder marked 'forward sweeps' and choose a file marked something like 'medium strength sweep, on left hand side with a bit of a trailing blade to stop the spin at the end'.

● Act

That file gets passed to the action department, which tells my muscles what to do.

What does that mean for coaching?

As a coach my job could be to give the choosing department more or better files (ideal movements) to choose from, but I might also be to help the interpretation department understand the environment better or the filter department to know what to pay attention to.

If you look at a load of the stuff we look at on coaching courses like IDEAS,

WASP, VAK, timing and quantity of feedback, they implicitly assume an information processing (IP) approach. The coach sets some tasks to observe a paddler's performance, they compare that performance to their own picture of what the paddler's movements 'should' look like, they then provide some appropriate feedback to the paddler about what to change, which in turn develops the paddler's model of what their paddling should be like. The coach's job is to provide just the right information to guide the paddler towards a better picture of the correct movement.

A skillful paddling performance is based on having in depth knowledge and understanding of technique and tactics.

Ecological Approaches (E) – it's all about what your head's going on in!

These theories are really different. They say that it's not helpful to break coaching up into neat flow diagrams in the way we do for information processing. In the ecological approach (E), there's a paddler in a boat on the water trying to do something. That unique combination of paddler, kit, environment and task is what we need to look at – if we try to look at any bit of that in isolation, it no longer makes sense (see figure 2).

Ecological theories aren't interested in what's going on in your head – there's no need to develop mental models of perfect strokes, or to interpret the sensory information you're receiving. Your body, your kit and the water you're on offer you opportunities to move and you simply move!

A coach might help a paddler to tune into new movement opportunities (for example: "Have you tried using the wave to get across to the other side of the river?"), helping them to tune into the environment ("have you noticed how the wave is green on this side of



Figure 2

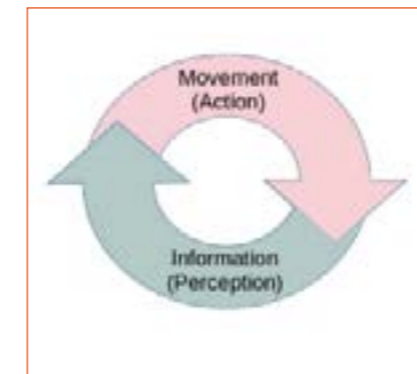


Figure 3

the river and more of a hole on the other side of the river?"), helping a paddler to coordinate a new movement ("have you thought about squeezing the paddle in towards the front of your boat to make a tighter turn?") or manipulate the kit ("what happens if you try that with a shorter paddle?") all of which in turn make new moves become available.

As we try to do a move, we are constantly receiving new information, which changes how we move, which in turn changes the information we receive, which in turn changes how we move, and so on... forever! Movement and information are a continuously adapting cycle (see figure 3).

The coach's job is to help the paddler explore new movements or to push them away from existing movements which might be ineffective or unsafe.

A skillful performance is based on your ability to pick up information from the environment and adapt your movement to move the boat around. Whether or not you understand what you're doing or can put into words what you're doing is irrelevant.

So how do those things look different out on the water?

I don't think I could tell from a two minute snippet of a coaching session

which approach the coach was using. A paddler paddling into wind, playing with different body posture could be doing a bit of discovery learning leading to new information which refines their mental model (IP) of paddling, or could be attempting a task in an environment that's prompting them to create new movements (E).

A coach telling a paddler to swing their belly button from side to side whilst paddling could be setting a practice task which develops the paddler's internal picture of what good paddling should look like (IP) or could be using a constraint to push the paddler away from an ineffective movement and forcing them to coordinate a new one that will work better for them (E).

But I reckon if I watched the whole coaching session I'd get a pretty good idea. Here are a couple of significant differences;

● Variability

In IP we'd typically practise a new thing in a simple environment (e.g. paddle forwards in sheltered water). Once they can do that reasonably well we'd add in more variability (e.g. paddle forwards fast and slow, paddle forwards in wind or in waves. Paddle up, down and across the wind. Paddle a different boat). The aim of the variety is to help you to be able to adjust the correct technique to the different conditions that you might encounter. You might choose to practise in conditions that are slightly harder than you're expecting to encounter, but there's no point in practising stuff that you're not going to need to do. The aim of the practising is to be able to replicate the same technique in different conditions to be able to get a consistent outcome.

With an Ecological approach, we'd think about exploring the range of all possible movements which includes stuff well outside what you'd ever need to do. You could do this as a beginner as much as you could as an intermediate. There's just as much value to be had from doing handstands in canoes as there is from practising J-strokes. Playing at hand paddling a kayak or paddling it whilst kneeling and facing the stern might be just the movement that helps you to improve. You learn to get good at solving movement problems as well as shaping particular movements. The aim is to be able to invent new movements as you go, to deal with ever changing conditions.

● What if the task is too hard?

If the paddler is working on something that's too hard for them, in an IP

approach it's fine to break stuff down into bits, practice those bits out of context and then put them all back together again (e.g. working on the set-up to a roll, or working on the correction part of a J-stroke before returning to the whole move).

The Ecological approach would be to simplify the whole task in a way which still captures the essence of the movement (e.g. hand rolling a boat that's full of water, or crossing a weaker eddyline). The skill lies in the relationship between the paddler and the water, so it's not OK to break a complicated move down and practice the different bits individually out of context.

● 'Or' or 'and'?

To academics these are two really different, incompatible theories about how we coordinate our movements. As a pragmatic coach, I doubt that either theory actually captures the complexity of one brain with 80 billion brain cells trying to help another brain with 80 billion brain cells coordinate 600 muscles controlling 300 joints whilst bobbing up and down on the water. If we use the word story, rather than the word theory, then maybe that frees us up to choose to use the right story on the right occasion.

For me I'll often find myself swapping approaches. With intermediate or expert paddlers on the river, on the sea or in the wind I'll often find myself adopting a task-based ecological approach. When doing this I'll find myself spending more time setting tasks in slightly simpler environments. When there's a load of time pressure, or if I'm coaching people who want to be taught rather than to explore I'll often favour an IP approach.

As with all coaching decisions, it'll change. If somebody is overthinking their paddling, I'll try to nudge them into a more playful ecological approach. If someone is doing something that's obviously not working and I've got an easy fix for, I'll swap to an IP approach and simply tell them what they need to change instead of playing a prolonged guessing game!

Finally, if you want to learn more about Ecological approaches to coaching, I'd recommend the Perception/Action podcast or How We Learn To Move by Rob Gray.

Thanks to everyone who has taken time to read these articles over the last few years, and special thanks to everyone who has contributed to them or got in touch to discuss them. Happy paddling and all the best in the New Year.



Figure 1