MEMORIES ARE MADE OF THIS

Some seasons ago, Swans were nesting on a particular stretch of the Wiltshire Avon. The nest was in marshy ground and the only navigable footpath ran right by the nest. While the swans and cygnets were in the water this was no particular issue but, once they were out and anywhere near the nest, the adults were predictably aggressive. Needless to say I got stuck between the adult swans and the way back to the car. They are a beautiful bird but if they're between you and the pub, hissing, all wings and beak heading for your shins, they rapidly lose their attraction.

Just a few days later I was called by a friend who had been attending an industry awards ceremony in New York.

I think it's fair to say that he was a little overexcited.

"I'm just heading for the subway" he roared over the phone and added, as a parting shot, "I've got a Swan"

It is not a common experience to be woken very early in the morning by someone who has clearly overdone the cocktails, announcing that they are about to enter a complex metropolitan underground system, on another continent, late at night, holding a large and potentially dangerous wild bird with which you had had a recent violent encounter.

"That's going to be a challenge…" I thought to myself "… although, I suppose he's done worse…how is he going to get it past hotel reception ?"

I couldn't sleep for laughing.

In fact, obviously perhaps, "Swans" are just the short name for the awards, like Brits or Grammys.

Who knew ? I certainly didn't.

It's dull now I know, but for a few joyful hours my imagination ran wild…for sure he was either going to get arrested or end up in casualty.

What is a bit odd is that, after all these years, even though it's utterly trivial, I have never forgotten that a Swan is a name for an obscure US lighting industry award. I tell people this whenever I see a real live swan, I've just told you and, sometimes, I tell random strangers at parties…although I doubt they remember.

HOME ON THE RANGE

Wrapped around the concepts outlined in Blooms Taxonomy, throughout the late 50s and 60s, educational psychologists attempted to deliver objective means of measuring learning performance. What people could remember, how much detail could people remember?, in fact, how come we remember anything at all?.

Turns out this was quite hard.

Difficult or not, it meant that greater focus was brought to bear on learning processes in each of Blooms Domains some of which are still very relevant to us when we teach today.

We have met the book “Human Performance”. (Fitts and Posner, 1967) when referencing transfer of executive subroutines.

The book describes three basic stages of psychomotor skills learning

- Cognitive

  Where students are having to think very hard to understand how they are supposed to move.

- Associative

  Where students can perform the basic motions and start to modify with practice

- Autonomous

  Where students can perform and adapt movements automatically, without thinking.

I am not an educational psychologist, not a psychologist at all in fact, so on reading this I instinctively label students fitting these stages as, beginner, intermediate and advanced or expert casters. Of course it’s not that simple, it is a range of skill at every level and it should be noted that an intermediate or even an expert caster will still go through all the stages when they are trying to learn something new.

For fly casting, some things are common throughout the stages. For example, we know that the basic motions that a beginner has to learn are more or less the same skills that the intermediate or experienced caster is seeking to improve or adapt. Critically for us, although the basic skills are the same, the learning process is slightly different at each stage.

If the learning is different stage by stage then this means that the lesson structure and content for a beginner and an advanced caster is quite likely to be different too. Sometimes, very different.

Wherever the student is on the skills continuum from beginner to expert, we, the instructor, have to find out where on that range they sit and adapt what we deliver and how we deliver it, to fit.

This is particularly true of informational content, content here meaning the established principles and the unique terminology we use in cast analysis. We are perhaps reluctant to admit it, but, only a fraction of this content is needed in order to conduct skills instruction. How many facts, concepts and ideas we might want to include in a lesson, how much or how little of the theory is delivered, is significantly influenced by the differing cognitive learning behaviours of beginners and experts and very heavily influenced by our common psychological behaviour not as casters, but as normally functioning human beings…as we shall see.

As a general guide it goes a bit like this: Beginners need maximum intervention and minimum information. Intermediate casters need a bit less intervention, a bit more information plus unsupervised practice time as they progress. Experts are highly intervention resistant, practice a lot and, because they can do the casts almost perfectly, think they already know everything…although they say they don’t.

I've attended so many presentations and casting demos they all seem to blend into one impenetrable blur of waving rods and lines. There are a few notable standouts though and, over the years, I've tried to work out why these have stayed in my mind. Some are because they were just perfect examples of how to do it right, some because they were catastrophically bad, some because they were so damn funny and some just because they sprung an unexpected nugget that stuck with me..

In 2012 Tim Rajeff delivered a workshop at the EWF in Germany.

It was a belter, and, being well engaged, you would imagine I could remember what it was all about but, try as I might, I can't. This is no reflection whatsoever on Tim who predicted exactly this outcome.

That's because what I do remember is his identification of short term memory recall limits and the business card with three dotted lines where he could write down the three most important takeaways he wanted his client to remember after a lesson. Unfortunately I can't now remember what they were…and there might have been five.

I can definitely remember we discussed Rabbits as coprophages at dinner later though.

Recall limits, Business cards and shit eating Rabbits…hmmm…

…it was probably three then, (Rajeff T. EWF, 2012)…or definitely three, hopefully four minimum, possibly five, (Surtees. 2020) or seven, plus or minus two (Miller. Magical Number Seven. 1956)

Either way, Tim's point is hugely relevant to instructors because a client is only going to remember a tiny fraction of what you tell them…and if you give them too much, what they remember may not be at all what you expected.

Why is this?... you may justifiably wonder.

FLOW INTERRUPTUS

All too often we fall into the trap of believing that we have succeeded as instructors by relying on supervised or observed performance as evidence of learning. It definitely isn't.

We have a sensory system, sight, sound, touch, smell, taste, which absorbs information from the environment around us. We react to that environmental stimulus. I feel cold, I put on a coat. See the ball, catch the ball.

We take behavioural decisions based on information we have pre-stored in our long term memory as a result of previous experience. Some reactions are instant, built in reflexes, others are learned reactions involving a conscious behavioural decision. Ultimately, we are trying to achieve the third stage of autonomic decision making when we cast, an almost instant reaction to external stimuli.

The more experience we have of a particular stimulus the faster we can react to it. If we have nothing stored in there because we have encountered something unusual, we have to think about the response.

Thinking ? ouch, I know…who needs it ?

But it's not really hard "thinking", not in terms of serious consideration of the finer points of political philosophy, whether to pour a gin or a whisky, or whether your socks might be inappropriate at a funeral, it's more of a sort and select, intuitive kind of thinking and our neurons and synapses function pretty fast in that context. Most of us don't know we're doing it because it usually just rips along in the background. We use this intuitive thinking time to try to find something in our experience bank, something on our memory map similar to the new stimulus we have just encountered. It doesn't have to be exactly the same, just similar.

For an angler it may be an encounter with wind, it's never the same strength, never the same direction. It could be currents in a stream, never the same height, never the same strength, not always the same stream. We search around in the brain files marked "wind" or "currents" to see if we can find anything relevant, we then deliver the response to that similar experience and test that response against one of our cues to see if it needs to be adapted or changed altogether…did I cover the fish ? did the fly go in the bush ?, did it drag ?.

Our intuitive thinking time gets longer the more unusual stimuli we experience and the wider selection of possible decision responses we therefore have to choose from. It gets shorter the faster we can access similar experience and employ the response. This kind of thinking can slow us down physiologically, we take a fraction more time to react to new or unusual external stimuli. It may be milli-seconds but, as a consequence, smooth connected movement can become disjointed and we suffer Flow Interruptus. 😊

As Tim correctly identified, academic research tells us that we have limited space in our short term memory and limited time to process environmental information and file it in long term memory before its replaced with new and more recent stimuli. *(Miller. Magical Number Seven. 1956) (Atkinson and Shiffrin, 1968) (Baddely and Hitch 1974)* This research also established that information easiest to recall is most likely to have been that processed first and/or that processed last. This most certainly informs our teaching and many of the basic teaching principles of cognitive learning, primacy, recency, etc have been discussed in casting articles elsewhere. (*See Dayle Mazzarella Loop 2011.)*

In fact, there is only so much sensory stimulation we can cope with. Too rapid an input of new or unusual stimuli, we overload and collapse into a state of confusion and a rictus of indecision. If you have ever been in a boat with someone who hooks their first fish you will no doubt have witnessed this condition…probably contributed to it too by giving measured words of quiet reassurance. It's also a common experience when a learner driver first encounters a busy roundabout. 😊

As a rule, when we are concentrating on executing a particular task or thinking about a new and specific sense/response process, we filter out extraneous or irrelevant stimuli. Attention awareness studies known as the "Invisible Gorilla" tests carried out by Chabris and Simons at Harvard in 1999 demonstrate this type of phenomenon.

One of the interesting byproducts of this study is that once you have identified the issue in task two it becomes more difficult to accurately complete the task you were originally required to do. Focus shifts from one objective to another, one stimulus to another and not necessarily in the right order. This can have a big effect on whether you ever achieve your desired outcome.

For an newly minted instructor, an acknowledged expert in specialist casting terminology, brimming with cunning concepts drawn from the doctrinal texts and natty drills lifted from the casting sainthood, any lesson is a tough ask because it is an exercise in fierce personal restraint. Most casters need time to think and process and generally speaking they don't need too much stuff to think about. Personally, I sometimes can't stop myself. I think I've got better at it but I still have to have a harsh word with myself on occasion.

Learning to actually make a particular shape in the line is not at all dependent on knowing that the thing you've made is called a "loop". Personally, I find the term "loop" quite handy but it could just as easily be called a "Bob", or a "wave like perturbation in a moving medium" if you felt that would help your student.

For us, what I have described as stimuli above are synonymous with what we have previously called cues. We know that, for cues to be effective in psychomotor skills learning, they must be sensory. Names of things, concepts and ideas might be very interesting but they are not necessarily, in themselves, sensory cues. So, unless it is absolutely essential in making a simple explanation comprehensible, dump it. In fact , if it's not possible to attach a clear sensory objective to any desired behaviour, it's probably wise to dump that too.

In the context of a lesson, "less is more", "KISS", "project simple" as espoused by many eminent instructors seem to me to be highly desirable principles and supported by mountains of academic research. Good instruction is very much about managing the filter like this, pre-selecting what is genuinely useful, limiting stimuli to prevent sensory overload and helping the caster to order how they process the stimuli so that it can be stored in long term memory. If an instructor changes cueing focus too soon, too often or too quickly then the less easy it becomes to predict exactly what a caster is going to remember going forwards. In fact, if you over do it, it becomes so difficult, you may as well be divining from knuckle bones or reading the entrails of sacrificial goats in order to determine the probable outcome of your lessons.

Finally, instructors must guide a caster to maximise focus on environmental stimuli that the caster and the instructor can recognise independently. This is to be sure that the caster can continue to improve through practice without the instructor present.

This is a massively important objective for an instructor because performance by a caster under supervision doesn't necessarily indicate that the caster has learned and can perform the same movements in unsupervised practice, the process is incomplete…in rabbit or coprophagia terms, we have only produced the Cecotrope.

You can look it up…I had to… 😊

In his book, Thinking Fast and Slow, Daniel Kahneman says :

"*It is the consistency of the information that matters for a good story, not its completeness. Indeed, you will often find that knowing little makes it easier to fit everything you know into a coherent pattern."*

COHERENT PATTERNS

All this behavioural psychology stuff tells us that consistently successful instructors will:

1. Prioritise Psychomotor skill learning, movement, over Cognitive learning, facts and theories.
2. Select objectives or sensory cues in line with the most effective hierarchy.
3. Control cues to avoid sensory overload.
4. Order cues to chunk complex movement sequences.

When instructing Beginners:

1. Instructor intervention and reinforcing feedback is very high.
2. Cues are external and few.
3. Performance is very inconsistent.
4. Performance improvement is rapid.

For Intermediates:

1. Instructor intervention and reinforcing feedback is high
2. Limited concepts and theories are introduced.
3. Cue sequences are increasingly chunked.
4. Unsupervised practice is necessary
5. Performance is inconsistent
6. Performance improvement plateaus or is slow

For experts:

1. Instructor intervention is very low and feedback is not welcome.
2. Existing “known” concepts and theories are usually in conflict with centuries of academic study.
3. Cues are nearly all imaginary analogies.
4. Their performance is consistent…everyone else’s isn’t.
5. Improvements are very small.
6. There is much poorly masked interpersonal conflict.
7. They are very, very needy.

Some expert casters are quite odd when it comes to sensory processes.

At least two I know can identify a fly line solely by smell, they do blind fly line smellings !!

I mean..Jeeze guys.