

THE WIZARD

It is a strange feature of life as a casting instructor that you are, almost invariably, not the first person to have given your client a casting lesson. Whoever it was who made that first introduction, it is also, almost invariably, going to have been by someone untrained in the educational techniques needed to produce lasting results.

My Grandfather was a closed, rather taciturn man. He cast a bamboo rod with a broken tip that he'd whipped and patched with a short length of brass tubing, a greased silk line and flies from an old Bakelite fly box which contained a few nondescript patterns he had tied himself. He wore an old black suit and wellies to the river and although he wasn't the slightest threat, I feared him greatly.

One spring he took me out to fish.

I was told to sit on the bank with strict instructions to make no noise and definitely not to throw stones. Without really knowing what to expect, I watched his fly land on the surface of the water, float a little, then disappear as a trout rose amongst the ripples in the run and took it.

For an impressionable little boy it was an act of unimaginable, astonishing magic, a fish conjured seemingly from nowhere. This relatively simple, deliberate and entirely expected catch on the part of my Grandfather caused a radical and entirely unexpected transformation in my childlike opinion of him. I moved instantly from fear to fascination. I was six. When he said the word "casting" I took it literally...it meant "spells" to me, so, naturally, I concluded that he was a Wizard.

I begged him to teach me the magic, and, as I grew up, he did. It was of necessity an inexact, imperfect, ad hoc sort of instruction but it was a gift from grandfather to grandson of almost inestimable value. I think he knew that. Being so young, I had no idea and he died long before I realised.

I am not now a formally trained educator, nor was I when passed my casting instructor exam, I was green as grass...someone should have warned me. 😊

BLOOMS TAXONOMY

Teaching processes, the effects of structured methodologies, objective setting and the management of cognitive learning behaviours, have all been well researched within Educational Psychology and Human Movement Sciences. The key elements of successful instruction, the fixing of behaviour or

information in the long term memory of the student, have been refined and recorded for many years and this resource is widely available to us as casting instructors.

In the 1950s, Benjamin Bloom, a professor of educational psychology at the University of Chicago, edited a hugely influential paper which became known in educational circles as “Blooms Taxonomy”.
(Bloom, Benjamin S. Taxonomy of Educational Objectives 1956).

The taxonomy breaks learning objectives in to three distinct categories.

1. A Cognitive domain, referencing retention of facts and the logical organisation of concepts and ideas.
2. An Affective domain, referencing the development of values, emotions and feelings.
3. A Psychomotor domain, referencing the development or change in physiological behaviours.

Each one of these categories requires a slightly different approach from an educator in order to achieve long term changes in the knowledge or behaviour of a student. Each one in turn requires an educator to adapt to the developmental stage of a student sitting on a continuum from beginner to expert.

Shortly after completing my Casting Instructor exam I was contacted for a lesson, my first as a “qualified” instructor. I remember it still, not because of the excitement at being able to assist a fellow angler or even to be able to impress with my new found knowledge and shiny certificate of competence but because, in terms of improving casting, it was an unmitigated disaster. In those two hours I had unquestionably delivered detailed terminology, facts, concepts and ideas but significantly failed to effect a single long term change in physiological behaviour.

Casting wise, it was the equivalent of dismantling a twenty year old Fiat, explaining how each bit worked, how to put everything back together again in order to make a brand new Ferrari, dumping bags of loose engine parts on the poor guys drive...and then doing a runner.

PSYCHOMOTOR SKILLS

At root, we are teaching a caster how to move. Our principal objective is to establish movements in the long term behavioural memory of our clients so that they become better casters out on the water.

These movements fall in to the third domain of Blooms Taxonomy and are known as Psychomotor Skills.

They are broadly defined like this :-

- “precise, smooth and accurately timed execution of performances involving the use of muscles” (*Gagne and Driscoll 1988*).
- “coordinated movements or reactions in response to situational stimuli” (*Singer, 1980*).
- “the ability to bring about some end result with maximum certainty and minimum outlay of energy, or of time and energy” (*Guthrie 1952*)

Psychomotor skills training is employed across a wide variety of disciplines from physiotherapy through tennis and cricket to playing the trumpet, the piano or, sometimes, dexterity based magic tricks.

Clearly, the unique output in each discipline colours the kind of motions an instructor is going to encourage. I, along with many others, assumed that the unique outputs evident in fly casting required unique teaching methodologies.

It came as something of a surprise to me to discover that this was not only, *not* the case, but that effective teaching and learning strategies already existed, were backed up by decades of research and could be easily adapted to fly casting instruction.

The educational process for psychomotor skills learning, whatever the output, is common. Psychomotor skills are characteristically learned through repetitive practice linked to a sensory cue.

Having gleaned from the Fiat/Ferrari parts dumping fiasco that a minor tactical change may be necessary, I attempted to adjust my teaching to place a greater emphasis on improving motion control rather than underpinning technical understanding. This resulted in some limited successes...but usually only while I was watching or shouting from the side-lines.

It became evident that students could perform casts well under supervision but, left to their own devices, rapidly reverted to more or less the same cast they turned up with. This was not quite as embarrassing as my first effort and I had less inclination to run for the hills, but there was plainly little or no change in the long term behaviour of the casters.

They had tried the new Ferrari but drove home in the old Fiat they had arrived in. The disappointment was almost tangible.

CUES

Cues are a means of “feedback”, a mechanism to check if what we did was what we intended to do. They are linked to the five senses, sight, sound, touch, smell, taste.

Examples may be putting a basketball through a hoop, hitting the bullseye with a dart... both visual cues. For casting, a visual cue may be a loop shape or fluff against a cone target. Audible, the woosh of a rod during a casting stroke.

Feedback is a critical element in the learning cycle. Without it a student can't tell whether they're succeeding or failing. Instructors and experienced anglers can't either...although they may sometimes suggest otherwise.

We already use cues for feedback when we're fishing. It is a short step to see how a cue works when a caster is casting at a fish or putting a fly up against a mangrove. Left to our own devices and whatever our skill levels, we adjust behaviour in response to the cue, if we put the fly in a bush, we shorten up and go again.

For casting instruction purposes cues can be divided in to two types

1. Internal Cues

An internal cue is when a student is asked to concentrate on affecting change to a particular part of the body or a body motion directly linked to the skill. We would very commonly see this kind of cueing when instructors focus attention on the wrist when trying to deal with excessive rod rotation.

2. External Cues

An external cue is when a student is asked to concentrate on the effect of the movement. To observe a loop shape or a line layout for example.

Many established instructional techniques involve analogy, asking a caster to imagine behaving in a way similar to whatever it is we are trying to achieve. “Imagine holding a small bird” to reduce over-grip for example, or, “imagine running your elbow along a shelf” to encourage a long casting stroke or a straight hand path. Analogies like this establish ideas and concepts well in books, magazine articles or demos but, whilst these analogical techniques are often imaginatively attractive, within a lesson, cues that generate an actual sensory response, “please hold this courgette” , “please pass me

the water glass without spilling it”, are way more effective in establishing control parameters because they are real. This is not to say that analogy does not work, it has its place, handshake or screwdriver grips for example but, whilst your caster may never be sure whether they have squished an imaginary chaffinch using either grip style, they’ll definitely know if they’ve squished an actual courgette.

There is an established hierarchy in cueing too.

“numerous studies conducted over the past decade or so have provided considerable evidence that an external focus of attention is beneficial not only for more advanced performers but for the inexperienced or novice as well. An external focus is not only more effective for performance and learning, compared to an internal focus, but also results in greater movement economy. That is, an external focus appears to speed the learning process so that a higher skill level is achieved sooner” (Wulf 2007b). (Wulf G. et al Instructions for Motor Learning, Differential effects of internal v external focus of attention. 1998)

Pointing a finger, arm extended and drawing a big circle, mobilises the shoulder joint. The caster is concentrating on the circle, this is external cueing and its very rare for someone to be unable to perform the motion. It should be reasonable to expect that asking a caster to flex the elbow, an internal cue, to bring the circle closer to the body will add further mobilisation of the arm. However, by bringing internal focus on the joint it is not uncommon at this point for a caster to lock up the elbow, reintroduce the wrist and make micro circles with their finger.

We can change the outcome to our advantage by using an external rather than internal focus. If we introduce a cup of water held in the hand to create an external cue, then the caster will invariably exercise complete control of the wrist throughout the drill because they are concentrating on avoiding spilling the water.

In an instructional context, it is vital that the cues we offer to a student generate real sensory feedback. This is because it is the learner themselves that ultimately has to monitor and adjust movement and that without a sensory cue this is impossible. Every section of our instruction should therefore be carefully constructed so that the caster, as well as the instructor, can make an assessment and optimise motion accordingly. When cues are properly linked to a psychomotor skill and a desirable output, then our clients can use them for repetitive learning whether we’re there or not.

As instructors we plainly have options when it comes to deciding how and when we use cueing, for me, wherever possible, I use external cueing as a default option, internal cueing second and analogy as a tool of very last resource.

A flask of coffee, or more exactly a cup with coffee in it, led to the conclusion that my instructional focus was still pretty cockeyed. My wristy caster had complete control over his coffee cup, up, down, sideways, sitting, standing, walking, absolutely no problem...I later discovered he could do it with a pint of beer too.

If he could do this with a coffee cup or a pint glass, why couldn't he do it with a fishing rod?. More to the point, why was I trying to teach him to do something he could already do automatically, without thinking?. The learning challenge in this case was plainly not physiological, it was psychological...for both of us.

SUB-ROUTINES

Experts in carrying beer do not spend a great deal of time considering how to manage the joints and levers necessary to get them from one side of the bar to the other, they just go. This type of behaviour is called autonomic and it is autonomic behaviour that we are looking to ultimately promote in our students. Many autonomic skills like this already exist in the learner's prior knowledge and, if we can identify them, we can use this to our advantage when we teach.

Passing a glass of water or beer from one person to the next, for example, usually happens in a pretty straight line. If we can transfer this motion into a new context, a casting stroke, then our business ceases to become how to teach the motion but how to persuade them to use it for a different objective.

Learning to incorporate established but seemingly unrelated skills into a new complex skill set is referred to as transferring an "executive subroutine" (Fitts & Posner, 1967). This process is significantly quicker than having to teach complex motions from scratch. Even more to our advantage, the caster can easily be convinced that the necessary movements are already in their capacity to deliver, something which in itself can be a significant confidence booster.

Clearly, not everything in casting is so simple that we can neatly fit a single cue to a single motion and get the complete desired output. Skills vary in complexity. Many involve the combination of simple skills, known as part skills or subskills, into a complex skill.

The very first assessment task in the FFI CI teaching section requires that a candidate identify the parts of a PULD and teach it to a beginner. The parts of a PULD can be vested with purpose, a lift to unstick line from the water, a casting stroke to form a loop, a pause to let it unroll etc. Creating a link between part and purpose is an essential part of creating an external cue or objective

In the same way that we can disassemble a PULD casting cycle we can disassemble other complex movements. Most complex skills can be broken down in to sub-skills for later re-assembly. How detailed this process is, how granular we get, is a key part of our lesson planning process.

When we attach cues to subroutines, each part becomes uniquely objectivised and can be used to develop the next one. Structuring a lesson like this is another well-established educational technique known as Spiralling. This is a means of building a self-supporting scaffolding for future improvement by delivering a succession of small but consistent achievements, each one reinforcing the one that went before. Doing this builds confidence in the caster and creates a relaxed, positive learning experience.

We are all motivated by wins and, although improvement this way is incremental, it can deliver rapid and significant changes in breadth of control which, cumulatively, a caster will frequently find quite surprising. Properly constructed lessons, adapting pre-existing autonomic behaviours to achieve a new output, are not that difficult to assemble and the results can be dramatic for the student.

On top of this, we know that, within an unsupervised practice session, given the right prior encouragement and appropriate cues, a student will make long term behavioural improvements *without* significant corrective intervention from an instructor, casters will self-optimize and changes will stick without anyone bellowing in their ear.

And that, after all, I think is what we were trying to achieve from the outset.

From the point of view of outputs, the development of advanced psychomotor abilities or cognitive understanding, no lesson is ever perfect. Each one is different from the last and will, no doubt, be different to the next. All instructors acknowledge and understand that a poor cast from one caster may be a massive achievement for another and that expert casters may need a greater grip on the underpinning concepts and ideas than beginners.

Howsoever we mix up the content, whomsoever we are mixing it up for, a properly trained instructor should be able to cover out Blooms domains one and three and deliver positive results without too much trouble.

But what then of Blooms domain two ? that space for development of values, emotions and feelings?.

It took me many years to discover that successful instruction isn't just about getting someone to perform a perfect PULD or tail free loop, a triple toe hauled jelly roll or a cast out to the backing knot. It's not just about understanding the cold underlying mechanics, the dry unemotional application of educational theory or behavioural psychology, it's also a whole lot about making people a little bit happier.

As a goal, I have to admit that this is very easy to say, not as easy as I ever first imagined to achieve and very difficult to objectively measure. But, sometimes, just sometimes, when you have had to do your very best sorcery to make it all happen, when you are dancing with a beautiful girl in a monastery garden or being hugged by a big beardy biker on a wet suburban rugby pitch, when neat casts pop out like that perfect little trout from the ripple in the run, then, for one brief, transient, moment...you get to share in the happiness.

I like that...

...I think my grandfather liked it too. 😊