Using Guided Problem Solving in Teaching Canoeing Strokes

By Ralphie G. Schwartz, Esq.

Having been involved in canoeing instruction for the past couple of decades, I am increasingly aware that it is absurd to think of actually teaching someone to paddle competently within the confines of a structured class. Learning to paddle is a life-long endeavor that must be student driven. It is a process that cannot be compressed to fit within a fixed interval of instruction. The best we can hope to do is to provide learners with a good start and send them on their way.

That being the case, what kind of start shall we provide? Do we give them as many specific strokes as time permits, accept the idea that we can do no more, and send them into the world of water in a state of arrested development? I would hope that we can do better than this. What I propose is that we discard the idea of the instructor teaching the students to paddle and attempt instead to use our limited time together to help the students learn to teach themselves to paddle. If successful, we extend the duration of the teaching/learning experience from a few hours or days to the duration of each student's life span if that is their desire.

The idea is to do more than simply teach strokes. The goal is to help students to understand how the strokes work and why they work. If this is accomplished, they can self-critique, refine their strokes, learn strokes not covered in class, develop new strokes, and combine strokes into well coordinated movement sequences. When the learning process reaches maturity, the student will stop thinking in terms of specific strokes but will find themselves thinking the boat from place to place, thereby relying on their subconscious to produce the detailed movement solutions.

Over the years, I have been trying to develop and refine a method with which to accomplish this goal. Think of this article as a progress report. Like learning, teaching needs to be a work in progress.

Laying the Groundwork
I begin my lessons with general information. This includes canoe and paddle nomenclature in order to provide us a common language, correct hand position with hands shoulder-width apart (a low bottom hand favors moving the paddle through the water, a high one favors moving the boat through the water), the use of the top hand as the control hand, and the top thumb as the control thumb. Elements of safety, movement within the canoe, sitting/ kneeling positions, etc. are covered as well.
What comes next is an attempt to help students to understand how the paddler controls the paddle, how the paddle interacts with the water, and how these two combine to produce motion in the canoe. These are the important concepts.

**Power Face/Non-Power Face:** The power face of the paddle applies pressure to the water during a stroke, the non-power face does not; these are temporary designations sure to change during the flow of strokes.

**On-Side:** The side on which the paddler is currently paddling.

**Off-Side:** The side currently away from the paddle. Be aware, however, that there is an entire family of off-side strokes that require the paddler to briefly switch to the off side without changing hand positions on the paddle.

**The Paddler's Sphere of Influence:** I tell my students to think of themselves as having control limited to their half (front to back) of the canoe with the pivot point being under the center thwart. This is not really accurate because the pivot point is variable according to speed and point(s) of application of force; but it works. This idea goes a long way toward an understanding of turning strokes and holds up well even during forward and reverse work at which times both paddlers choose to have their respective ends of the canoe head in the same direction (consensus is fairly important here).

**Newton's 3rd. Law of Motion:** For every action, there is an equal and opposite reaction. Applied in this context we can state that, for every action of the power face against the water, the paddler's end of the canoe will move in the opposite direction with an acceleration commensurate to the magnitude of the applied force (that is not the way I actually say it but I am trying to imply some degree of scholarship here).

**Stroke Away From the Canoe's Pivot Point When Turning:** When we want to move our end of the canoe to contribute to a turning maneuver, we should apply the strokes as far from the boat's pivot point as possible. The bow paddler reaches as far forward and the stern paddler as far back as is practical when turning. In principle, this increases the magnitude of the torque (turning effect of the stroke); however, overzealous application of this idea can make the stroke physically awkward, thereby reducing its effectiveness. The idea then, is to apply our strokes as far as possible from the pivot point without reducing the biomechanical efficiency of the stroke.

Later, I will tell the students to apply all turning strokes so that the path of the paddle is perpendicular to the keel line of the canoe (true for pure turning strokes; we back off from this principle when combining strokes). In the interest of brevity, please accept my word on this point. It is consistent with principles of mechanical physics.
Stroke as Close as Possible to the Canoe's Keel Line When Not Turning: Ideally, we would cut lengthwise paddle slots in the center of the hull to allow us to apply force right through the canoe's centerline, thus eliminating the need for corrective strokes. The next best thing is to carry the top hand well outboard in an attempt to actually pass the blade under the hull somewhat. This, by the way, is an essential principle of solo cruising technique.

**Paddle With a Vertical Shaft (assuming a straight shafted paddle):**
This was covered, in part, by the previous principle, but now I am referring to a vertical shaft as viewed from the side. This is counterintuitive and probably contrary to your experience. Once again, please accept my assertion that this is essential in the interest of efficient force transfer from the paddler’s body, through the paddle, to the water. During a traveling stroke, this is accomplished by maintaining comfortably straight arms throughout the stroke, powering the stroke with torso rotation, shortening the stroke, and increasing the cadence. This is how racers do it. It works!

**Keep the Power Face Perpendicular to the Paddle's line of Travel:** This is for effective force transfer. Again, we hedge on this one when combining strokes.

**Partners Paddle on Opposite Sides and in Time With One Another:**
The one temporary exception occurs when off side strokes are employed by the bow paddler.

*The foregoing principles are cumbersome when rendered in print. In the context of an oral presentation, the main points can be covered quickly and the details can be worked into the teaching progression to allow the students to discover and experience them for themselves.*

**The Teaching Method**
Rather than describe the entire lesson in detail, I will articulate general themes, provide examples of the exercises used, and offer amplification as needed.

**Self Discovery Makes the Details Hit Home**

**Example 1:** For the concepts of power face, non-power face, and slicing the blade, you can assign simple problem solving tasks:

- Find a way to apply paddle to water so as to cause the boat to move.
- Find a way to move the paddle through the water without causing the boat to move.

The first one is almost too obvious, but it does underscore instructor commentary regarding power face, non-power face, and action/reaction, plus it sets up discovery of the important concept of slicing the paddle. Slicing can be a
revelation to the new paddler and the contrast provided by juxtaposition with the power face exercise adds power and emphasis to the discovery.

**Example 2:** The instructor can merely tell students to paddle on opposite sides and in time with one another, but personal experience and discovery can make a more powerful statement:

- Both paddlers paddle on the same side and in time.
- Paddle on opposite sides but not in time.
- Paddle on opposite sides and in time.

This is followed by brief observations and discussion by the padding teams. Opposite and in time should provide a stable, solid paddling platform. All others should produce a wobbly, unstable platform that interferes with efficient power generation.

**Example 3:** A vertical paddle produces efficient power transfer, but a personal history of bad habits may make students reluctant to accept the idea. The following is an attempt to help them to experience the difference. As a bonus, the exercise is an excellent method of teaching a sculling draw.

Partners set up to paddle on opposite sides. Correct hand positions are established by having them hold their paddles overhead as though hanging from them (top hand on the grip, bottom hand shoulder width down the shaft). Without changing hand positions, they bring their paddles down until the blades rest nearly flat upon the water with the top hand comfortably inboard. Now they begin to smooth imaginary frosting across the surface of the water.

With this established, they continue to scull, then begin gradually to move the top hand outboard, over the bottom hand, and into a vertical shaft position.

Have them do this once to learn the skill, then repeat it while noticing the progressive improvement in efficiency as the paddle shaft approaches vertical. The effect should be pronounced, producing a fast spin in the canoe.

**Student Problem Solving Builds Strong Concepts**
Achieving the stated goal of teaching students to teach themselves requires that students quickly develop a strong conceptual understanding of the interactions among boat, paddler, paddle, and water. Understanding that learning is an active endeavor requiring the student to process information, experiences, sensations, and outcomes, it would seem reasonable to attempt to accelerate learning by building student involvement into the teaching presentation itself.

By the time specific strokes are presented, the students have been given a set of rules for building an efficient stroke. With them, they can produce a simplified stroke that might be thought of as a skeletal representation thereof. The addition of any detail merely provides "flesh" to the basic structure. For example, a bow
draw stroke designed according to the "rules" would be performed as far forward as efficient body mechanics will allow, will be directed at right angles to the keel line, will be executed with a vertical shaft, and with the power face at right angles to the path of the stroke.

It is possible to introduce a new stroke by asking students to develop a "stroke skeleton." This is done by assigning the students a simple task. For the draw stroke example; (using the 'rules') "Find a way to move your half of the canoe to your paddle side." Once some basic experimentation has taken place, the teams are asked to show their solutions and reactions can be solicited from the rest of the class; more processing. When this stage is completed, the time is right to formally teach the draw stroke.

By using this problem solving approach, the eventual presentation by the instructor becomes, in effect, an answer to a question shared by all members of the class. In this case, "How can I move my end of the canoe to my paddle side?" Before the instructor even begins to teach in earnest, the basics of the stroke have already taken shape in the minds of the students, and the details of the correct stroke make sense. The problem solving approach has created a place for these details within the student's conceptual representation of the new skill. Because the students are engaged in the learning experience at such an early stage and in so meaningful a way, the author believes that a state of readiness to learn is created which accelerates learning, improves the quality of the learning, and encourages development of a conceptual understanding of the new stroke. This approach also encourages students to think of themselves as capable of synthesizing viable solutions to canoe handling problems, thus producing the beginnings of a new sense of autonomy. It is hoped that this will encourage them to begin to self-critique and, using problem solving through application of the "paddling rules," look inward for answers to questions generated by their paddling experiences. Both are important outcomes on the road to students learning how to teach themselves.

In this article I have certainly not exhausted all possible applications of this teaching method nor have I even provided all of the possible "rules" for producing particular responses in a canoe. I am convinced that most canoe strokes and maneuvers can be taught by this method and that the outcomes can be excellent. The technique may seem less efficient than a traditional presentation method at producing a finished stroke but I would respond that we need to inquire as to the outcome to which we aspire. Is our goal a set of finished strokes or a group of finished paddlers? If we hope for finished paddlers, we will have to revisit our students several years and many river miles down the road. This writer firmly believes that the problem solving approach, or any other that prepares students to teach themselves, will produce better results in the long run, and will ultimately prove to be a more efficient use of that time spent together in that beginning session on the water.

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