

Land an Airplane, Drive a Car: It's All in your Mind

Frederik R. Mottola
professor.Mottola@NIDB.org

Seven years ago I was at the American Driver and Traffic Safety Education Association's Annual Conference in Maine, where I was invited to make a presentation on how to improve teacher performance.

A few days before my presentation, an Asiana Airline pilot crashed while on a visual approach to the runway in San Francisco. The pilot had previously made only six landings in the Boeing 777 — and those were made by autopilot, where the plane basically lands itself. Making a visual approach requires perceptual judgment; the pilot must match the correct airspeed with the proper glide slope. On a difficulty scale of 1 to 10, the skills the pilot needed would rank as a 2, or about the same difficulty level that a novice driver would have in avoiding the rear tire of a vehicle from hitting the curb while making a right turn. The crash could have been easily prevented if the pilot had **consciously learned** to see with his mind the proper relationship of the plane to the runway as it was on its glide path – in other words, the use of Reference Points.

When it comes to learning how to operate any vehicle, whether an airplane or a car, it is easier for an instructor to tell the operator what to do, rather than teach what the mind should be seeing; but teaching the mind to see is the most effective way for learning to occur!

During my presentation, I recounted an experience I had in 1972 when I was a student pilot learning how to land a Cessna 150. During my second lesson, as we were coming in for a landing, the instructor was coaching me on the actions I should take: "Pull back the throttle; put in a notch of flaps; pull back slightly on the yoke; put in a little left rudder, etc., etc." So, I asked, "Al, what are you seeing that allows you to tell me what actions I should take?" "Oh, after three or four more lessons you will begin to get the 'feeling' for the actions that should take place," was Al's spontaneous reply. By this time the plane was landed, but I continued to probe Al's mind: "How do you judge the exact moment to flare for a soft landing?" Again, there was a response I didn't want to hear: "It will come to you after you get more experience."

That same year, as part of our driver instructor training program at Southern Connecticut State University, I had implemented a system for student instructors to videotape their in-car performance as they were student-teaching novice drivers. After viewing the tape,

student instructors would then write a critique of what they liked and disliked about specific moments and make suggestions on how they could improve their “coaching” skills for their next lesson. There were no video camcorders at that time; we used a video camera attached to a portable tape deck with reel-to-reel video tape. Well, you probably guessed that I borrowed the video equipment, and on my next flight lesson I installed it in the airplane.

With the videotape rolling, I asked Al if we could shoot two or three landings – which he was more than willing to have me do. I took the video home and studied the relationship of how the plane appeared to the runway when it was on its glide path. The visual cues were very clear. I had the correct picture in my mind and was eager to test out my newly-developed mind skills.

Once again in the plane with Al and ready to make a landing, I asked him not to give me any instructions. “I want to take all the actions on my own; only correct me if I put the plane in a dangerous condition.” The landing was perfect. Al said, “okay, let’s see if you can do it again.” After the third perfect landing, Al asked, “how were you able to be so consistent?” I smartly replied, “oh, you’ll get it after you have more experience.” Then I told him the secret. Once I knew how the number of the runway appeared to sit directly in front of the cowling as the plane was on the glide path, I had my reference points; and it was easy to use the plane controls to keep that picture constant while making the descent. If the mind knows what to do, it is very easy for the hands and feet to take the correct actions!

The improvement we need in driver education is to give our instructors the advantage of new and better training in how to help teens cultivate mental preparation. Development of the mind can take place without the teen being in a vehicle! A maneuver can be defined by each of its key “mind photos.” For example, for making a precision right turn there are five pictures the mind needs to learn. When each “picture” is learned, practiced, and mastered, it is simple for the teen to control the pedals and steering wheel to recreate the correct “pictures.” You will be amazed at how consistently teens can make a perfect right and left turns, as well as accurate parking maneuvers, on their very first attempts – once their minds see the correct pictures for success.

P.S. Here are the five “pictures” for perfect turns.

1. Side Position Reference Point
2. Forward Position Reference Point
3. Select a Hole or Gap in the traffic flow
4. Turn head to Target/Target Area
5. Recover steering at Transition Peg