

There is an old Chinese proverb, "A picture is worth a thousand words".

While I'm sure that the writer of this proverb was referring to an exquisite painting of Mount Kungur, the highest mountain in China or of the majestic Yangtze River as it winds and twists its way through the vast valleys and open plains on its 4500 mile journey across the country, I think the proverb applies as much to racers today as it did to the original author long ago.

When we first started our racing school 21 years ago we didn't record anything. We had no Race Pak data and no video recording. You got in the car, drove it and we told you what you did and how it looked.

This may not have been very sophisticated but I thought it should have worked well. One of the problems I quickly noticed was that the driver's recollection of what he or she

did and what they actually did was often very different. I thought (how naïve of me) that since I had watched thousands of cars go down the track and was a reasonably astute observer of drag race cars, that my explanation should be taken without question. I was wrong. The drivers often would disagree with me saying they did or didn't do certain things I said they did. The problem would be compounded if another student in the class would agree with the driver and disagree with me.

After much thought I came to understand that it was not simply that the driver didn't believe me or trust me or wanted to argue with me. The problem was that they honestly didn't know what happened. Their minds hadn't recorded the event. And the other students, not being experienced, hadn't seen it either. And if no one saw it except me then maybe it didn't happen at all. Maybe.

So I bought a video camera. That helped a lot. Then, following a run, we could step back into the classroom, plug in the tape (we use digital stuff now... no tapes) and watch in amazement the car turn a bit left at the shift... just like I said.

The value in this was not the satisfaction of "I told you so."

The value was in getting the driver to believe what I was saying so they could work on the problem. If someone doesn't believe they have a problem they won't work on a solution. Although the video tape was good, it wasn't the cure all. We added Race Pak data recorders (standard equipment today) and our driver analysis increased ten fold from when we first started. But as good as this was, there is always room for improvement.

A situation would arise where a car would make a move and the driver would of course see it move on the video but profess that he or she did not move the wheel and cause the

car to move. The driver's explanation would be that indeed the car did move left but all by itself and the driver made the appropriate correction back the other way.

So I would show them "frame by frame" the run indicating how a car looks slightly different if the move was induced by the back end (unequal traction) or the front end (the steering wheel). I'd follow this with a study of the Race Pak data showing the drive shaft graph which indicated no tire shake or slippage. The hope was that the driver would agree he or she made the first move and the car did not do it by itself.

This however, for some folks wasn't enough. I needed something else.

Bring on the "in car camera". I'd seen these in use for years and what had prevented me from using them was the size and costs. Well as technology improved both of these issues

have been addressed. We've just installed 8 oz. wide angle Stable Imaging Systems cameras in our alcohol cars. Wow... is this helpful. We now have the ability to view exactly what the driver sees and what the driver is doing. This greatly enhances our ability to teach them more stuff in a shorter period of time. Now the driver will see things they are doing that previously they would never admit to doing.

Once they see it and believe it they are far more likely to make a decision to modify or improve their performance. And this is not limited to new drivers. The Pros, the best drivers in the world, often are doing things in the car of which they are unaware.

These cameras are currently in use on a number of professional cars and not just to look at the steering wheels. Now the crew chief can look at the driver's hands, feet or anything else. Crews have installed the neat little units to watch tires, suspension, engines, wheelie bars, exhaust

pipes, blower belts and more. There is almost nothing we can't take a movie of. There is one car I'm told that carries eight different cameras. Watching all that following a run would be like watching a feature length film.

How much information will the keen eye of an experienced crew chief glean from carefully studying all of this video data? Well let's see, the run takes 5 seconds, there are 33 frames taken each second, and each frame is essentially a picture and a picture is worth a thousand words...