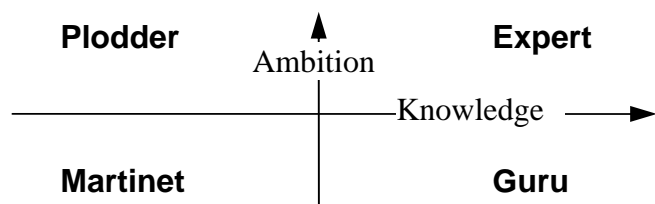


**Q & A**

? Q. "I'm a rowing coach and very keen to use biomechanics and other sport sciences in my work. What is the best way to do it? How do other coaches use science?" This is a typical question, which we receive from a number of coaches.

✓ A: To answer this question we need to analyse how different coaches utilise sport science. Then we can build a model of the most efficient coach-scientist interaction. To simplify things, let's make a simple chart, where the X axis is a coach's knowledge in sport science/biomechanics and the Y axis is ambition to use science in training process:



Using this simple model, we can define four types of coaches. Let's call them provisionally: Martinet (negative knowledge and ambition), Plodder (negative knowledge, positive ambition), Guru (positive knowledge, negative ambition) and Expert (positive knowledge and ambition).

**Martinet.** This is a type of old-fashioned coach who believes that sports scientists are very smart people, who manage to get their salary by doing nothing, but creating hassle for coaches. Martinet's favourite slogan is: "I (my crew) achieved (in far past) great successes without your bloody biomechanics!" This coach believes that the most important things in sport are aggression, bravery and discipline and that he is usually very good in inculcating them.

If Martinet is forced to use biomechanics, he says: "OK, I don't understand what your numbers and figures mean (and don't want to understand them). Just tell me what we should do to win a gold medal?" After the scientist explained the points to be improved, this coach would usually say: "That is exactly what I say every training session!" Martinet can be quite successful if he can recruit great athletes. However the performance is usually unstable and results are unreliable.

**Plodder.** This coach is very keen to use sport science and quite often uses it more than necessary. Plodder works really hard himself and forces the scientist to work hard and produce a huge amount of information, which has little or no use at all. Quite often this coach lacks knowledge not only of biomechanics, but also of basic school science; e.g. he/she has difficulty in understanding the difference between force and power, kg and Newton units, etc. Plodder always changes testing protocols and conditions which make the data incomparable. This coach likes to modify equipment and boat setup

without sensible reasons, select a better shape of the blade, etc.

The Plodder was usually a good athlete himself in the past. This coach has dominating practical perspective on rowing technique, which was derived from his/her own experience. The Plodder is usually a good psychologist and can communicate effectively with athletes and motivate them for hard work.

**Guru.** This coach usually has a sports science background and even a degree in it. However, he prefers to work behind closed doors and does not allow anybody to see his training methods. When, the scientist delivers the data, Guru usually says: "Thanks. (quite often omitted). See you later!" He is usually reluctant to accept any idea, which conflicts with his own and doesn't want to learn from others. This prevents the development of his coaching technology and makes it out-of-date after a while. Guru is usually reactive. He doesn't tell the scientist what he wants or how to modify measurements, but quite often criticises the biomechanical equipment and data. Data inaccuracy is his favourite soapbox. Owing to his low ambition and motivation, Guru can experience problems in communicating with and in motivating athletes.

**Expert.** This is the best combination of a good knowledge of sports science with a high ambition to use it. Expert is always open to new ideas and very keen to learn, even if he has already achieved great success. However, he/she analyses every new idea and discusses it with the scientist; i.e. the idea is broken down into logical parts which should be checked to see if they are consistent with existing, verified concepts. Expert is usually proactive. He knows perfectly what sort of information is needed for a certain coaching task and tells the scientist exactly what he wants.

The most important quality of Expert is an ability to develop new training methods based on scientific information and ideas received from the scientist. Though new methods can be erroneous sometimes (but doing nothing is the only way to avoid mistakes), an adequate error analysis would improve them and finally produce the most efficient system. It is impossible to implement this system without scientific support, which becomes an integral part of it. The sport scientist becomes a partner in the creative process of achieving top performance.

**Conclusion.** It is obvious that it is better to have good knowledge and high ambition, but it is also important to estimate them adequately. For example, good results can be achieved when Guru works together with Plodder as a team. In this case, Guru compensates for the low knowledge of Plodder and, in return, receives high ambition and motivation.

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