Don's Diary

Professor David Spiegelhalter is Winton Professor of the Public Understanding of Risk in the Department of Pure Mathematics and Mathematical Statistics, Centre for Mathematical Sciences.

I start a typical day by pedalling to work along the riverbank, muttering to myself in a distracted way – but conscious enough to appreciate the good fortune of living and working in Cambridge. My work is unusual: it's more outreach than traditional academic research, although I try and keep a bit of that going too. But mainly I work with others to try and improve the way that risk and uncertainty are handled by society and individuals, particularly by using ideas from probability theory.

Talking to sixth-formers brought to Cambridge from comprehensives by the excellent Widening Participation team seems an ideal way to do just this. I am supposed to enthuse the kids with the mathematics of uncertainty, so I talk about gambling, teenage pregnancy, illegal drugs, knife crime, and how using probability can help us understand the magnitude and the underlying structure of the risks. I ask how many would like to know how long they are going to live, and as usual around 1 in 20 put their hand up. I have to admit that I can't tell them, but show an animation of their chances of survival that vividly illustrates the hazards their age-group will face in the next five years. The cool lads sit with their legs stretched out but ask questions and even laugh at the jokes.

This term I've been lecturing for Part III Mathematics in the Centre for Mathematical Sciences. I enjoy the teaching because I feel the topic, Applied Bayesian Statistics, is so important, and I try to get over the underlying ideas of using probability theory to represent your own uncertainty about any event or fact, whether it's the result of a coin-flip, who will be the next Prime Minister, or who committed a crime. The Cambridge students are so good that it becomes a serious challenge to impress them with something interesting, subtle and elegant. I don't always succeed.

I am new to scientific journalism but have found that there is a demand for analysis of topical stories that involve risk and uncertainty, whether it's swine flu or weather forecasting. There's been a real step forward in the willingness of newspapers and radio to take apart and discuss statistics and numbers instead of treating them as if they were some mystical entity that had to be either unquestioningly believed or dismissed out of hand. A lot of this may be due to bloggers, both unofficial and 'official' (eg BBC journalists) but, in spite of the visual possibilities of graphics, television still can't seem to deal with serious analysis of statistics and risks. But writing an article for a national newspaper takes ages.

I've also been spending time with two skilled animators, Mike Pearson and Ian Short, who produce wonderful animations to illustrate the size of various risks and how people can be manipulated by changing the presentation – we're part of a growing global community that works on visualising data to tell stories. We've got a website, www.understandinguncertainty.org, and we're working with a number of organisations who want to put use our animations to explain the possible consequences of, for example, breast cancer treatment or radiation exposure.

Our team spends ages picking what images we want to present, how they interact with the data, and how we want them to move in order to grab attention and, hopefully, improve understanding. We've just completed an animation of all the major league football results in Europe over the last 15 years, showing how much of the spread of points in the league table is due to chance (now down to around 20% in the English Premier League, a level typically found in Greece and Turkey).

My MPhil student, Yin-Lam Ng, did a dissertation that used a statistical model to predict Premier League results and we were featured on BBC Radio 4's More or Less and Radio 5 Live. With practice I have got better at radio interviews, and now feel fairly relaxed going to the familiar Radio Cambridgeshire studio, although it's odd never meeting the interviewers. I'm pleased and relieved to say that our predictions turned out to be rather better than those of the resident BBC pundit.

In the afternoons I struggle through the backlog of email. If people had to write letters maybe I would not get so many unsolicited requests for help, each of which I call a URH, which resembles the noise I make when examining the size of my inbox. Fortunately each Friday brings Happy Hour at 5pm, so I can have a drink with my colleagues before pedalling off home.