

## Wi-fi, the media and innumeracy

This month's column is dedicated to all those who feel they now need to wear tin-foil hats following the very recent BBC Panorama 'expose' on Wi-Fi and its supposedly harmful effects on the brains of children in our schools due to the installation of wireless-based computer networks. All I can say is that this sort of mathematically dysfunctional, scare-mongering drivel really makes me cross.

The program started off well by shooting itself in the foot when it admitted that half of the experiments showed an effect and the other half didn't. However, they bravely soldiered on with a disdain for statistical concepts which I have become accustomed to in recent years. The only person on the program who appeared to understand such analysis was the WHO scientist at the end of the program who patiently tried to explain the scientific method to the reporter. This was unfortunately too much for our dashing hero who responded by trying to discredit the WHO scientist by his associations with industry, although his far greater crime was disagreeing with the program, the cad.

This is how this sort of nonsense works. Suppose I am a Panorama reporter and I believe that in spite of everything, coins are not fair because of the presence of overflying, invisible UFOs. I arrange for 1000 reputable scientists around the world independently to press a button which invisibly tosses a coin 100 times each. If more than say 60 heads turn up then I will assert there is an obvious effect due to the UFOs, (3/5 sounds terribly convincing). As any school kid doing AS Mathematics will tell you, the probability of this happening by chance is about 0.0287. In other words, if 1000 people do this, then on average about 29 people will report more than 60 heads if the coins are fair, (one of them typically will report a sensational 70 heads or more). Then in a masterstroke, I interview three of the 29 who will report an effect and build up a story that the government really should do something about overflying invisible UFOs. To balance my program out, I will interview one scientist who didn't see the effect, but I will accuse him or her of being an alien. The result will be thousands of people demanding that the government do something about overflying invisible UFOs. In the case of Wi-Fi, the Panorama report asserted a close relationship with mobile phones and then used an entirely unproven case with mobile phones to try to taint Wi-Fi in school networks. The fact that the WHO had found no statistically significant evidence by looking at ALL the experiments (as it responsibly should) cut no ice with our intrepid Panorama reporter who no doubt is now working on a program to implicate fairies in house subsidence.

Oh please. All I can say on this performance is that the main source of radiation which might have adverse effects on rational thought processes are the BBC Panorama team. My book of the month is "Innumeracy: mathematical illiteracy and its consequences", by John Allen Paulos, a real mathematician. I therefore dedicate this book to them and humbly suggest they might read it before inflicting any more of this nonsense on us.

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