

Epidemiology

Viral and virtual

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A plague in a computer game may have lessons for the real world

READERS of *The Economist* may not necessarily be familiar with the "World of Warcraft". For those who are not, it is a cod-medieval online game in which goblins and trolls, warriors and wizards, and so on act out the fantasies of some 9m players who spend the rest of their lives in the alternative world of paper and pay-packets.

A couple of years ago the game's owners, a Californian firm called Blizzard Entertainment, accidentally spiced things up by releasing a plague far more virulent than they had intended. It started in a sparsely inhabited area but soon found its way to the cities, where it wreaked havoc.

So far, so cod-medieval. However the plague, and the reactions of the game's players to it, recently came to the attention of Eric Lofgren and Nina Fefferman, two epidemiologists at Rutgers University in New Jersey. Writing in this week's *Lancet Infectious Diseases*, they propose that games such as "World of Warcraft" might be used to work out how people will react when faced with situations no researcher can ethically introduce into the real world.

One surprise was that players put themselves into risky situations more often than epidemiologists allow for in their models. An unexpectedly large fraction of players acted altruistically to protect their weaker friends. On the other hand, a significant number seemed intent on infecting as many other characters as possible—behaviour reminiscent of a small minority of people with AIDS. There was also a lot of dangerous curiosity, as players who were offline when the plague began started logging on only in order to find out what was happening, and thus risked the deaths of their characters.

It was this curiosity, in particular, that surprised Dr Fefferman. It is not trivial to give up safety in order to satisfy curiosity, even in a game, though she acknowledges that the cost is not equivalent to that of suffering an illness in the real world.

Curiosity is not a behaviour included in current epidemiological models. Such models are effective at calculating the impact of behaviour on the spread of disease, but only—obviously—when the behaviour in question is known and understood. Identifying previously unrecognised forms of behaviour in the face of an epidemic could significantly improve the accuracy of the models.

That is where online worlds could help. If epidemiologists had access to a heavily populated game such as "World of Warcraft", they could watch how players' behaviour changes in response to variations in the risks they face. With that in mind, Dr Fefferman has talked with Blizzard's programmers and she says they are willing to entertain the idea of incorporating diseases or other risks into their virtual world in order for her to study them.

How the players themselves would react to such a change is not known. Until it is, the game's owners might be expected to exercise an understandable caution. But if players could be persuaded to accept Dr Fefferman's watchful eye (and many might welcome the idea that they were helping medical science), other research suggests that the results could be realistic.

Jeremy Bailenson and Nick Yee, of Stanford University, have spent years studying online behaviour in other contexts. They say it mimics the real world with "stunning" accuracy. They caution, though, that there are important differences between virtual plagues and real ones.

The obvious difference is that only real plagues kill real people, though the permanent loss of a character can be a traumatic experience for an enthusiastic player, and one he will try hard to avoid. The other difference is that game-death is rarely permanent. Usually, resurrection is an available option—something that medical science in the real world cannot yet offer.

World of Warcraft

**Resurrect that, suckers**

