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### **The World Today - Professor devises terror prediction model**

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**Reporter: Stephen Long**

ELEANOR HALL: Intelligence agencies around the world would no doubt value highly anyone who could find a way to forecast the behaviour of terrorists.

Professor Scott Armstrong from the Wharton School at Pennsylvania University in the United States claims to have a model that can do just that. An expert in conflict forecasting, Professor Armstrong is in Sydney this week for an international symposium on forecasting techniques.

Professor Armstrong has been speaking to Stephen Long.

SCOTT ARMSTRONG: What we've done is to create a process that will help us to forecast terrorism. We've used this in a lot of conflict situations. We haven't directly studied terrorism situations, although some are similar - such as one country building a damn to cut off the water supply to another country, which led to a threat of bombing the damn in order to solve the problem.

STEPHEN LONG: Where was that?

SCOTT ARMSTRONG: The country whose water was being shut off was Iraq and that was a number of years ago.

STEPHEN LONG: So you're quite familiar with the territory that's at the centre of world conflict now. So tell me how these techniques would apply to forecasting terrorism?

SCOTT ARMSTRONG: Well first, let's look at how people now forecast terrorism. What they do is they get experts and they ask them for their opinions about what's going to happen. We call that unaided judgement.

We've used unaided judgement and we present people who are experts in the area, with a set of eight conflict situations that have already occurred. They are disguised; they don't know this.

They have to try to predict what decision was made in those eight situations. It's very difficult to do. Usually there are three or four things that might occur, so on chance, they'd be right about 28 per cent of the time. As it turns out, the experts are right slightly more than chance - about 32 per

cent of the time.

So when you hear those people on TV, those people who are so knowledgeable, they really are not very good at predicting the outcome of these events.

STEPHEN LONG: So what made you confident that you can do a better job?

SCOTT ARMSTRONG: Well, there'd been a substantial amount of literature suggesting that when you can structure the judgemental forecasting process you can get substantial improvements. So we thought if we could take the information that experts have and use it more efficiently, that's one way to improve the forecast.

So what we would do is we would present situations to the experts, such as the case I described about Iraq, and asked them how many analogous situations can you think of?

They would think of that, and then we did two things. Some of the groups where we told, "make a forecast now", we found that that did nothing to improve the forecast ability. The other group were told to give us all of their analogous situations along with the outcomes, and all we'd do is total up and see what the outcomes were.

Then we would take the modal outcome, sort of the typical response, and say that's the forecast. That improved the accuracy substantially, from something like 32 per cent up to 56 per cent correct predictions.

STEPHEN LONG: So you claim to have a formula, or a model, that could allow you to predict likely terrorism situations or attacks in more than 50 per cent of cases?

SCOTT ARMSTRONG: That's correct. But we have a method that is even better than the structured analogies that I mentioned.

What we do is, we don't even need experts, we take undergraduate students and we tell some of them you're, you know... the other country was Syria... you're the leaders of Syria and another groups is the leaders of Iraq. The two of you have to get together and try to resolve this situation. So they role-play the situation, they have interactions.

As a result of that we see, you know, what happened. Did they bomb the damn or did they reach a conclusion?

STEPHEN LONG: So that's in effect, just a bunch of students putting themselves in the role of terrorist, and you say that that actually provides an effective way of getting inside the mind of the terrorist. Is that right?

SCOTT ARMSTRONG: Well, it's amazing. Imagine a young, undergraduate, female student trying to role-play a middle aged, male, Middle Eastern country leader. You would think that's not very realistic. So, we would like to have the same process played using actual, you know, people that know a lot about the situation. We've been limited. Even limited we've had these

fantastic improvements in accuracy.

So now we have about two-thirds of the cases that we can correctly forecast for these simulated interactions. If we run a number of simulated interactions and summarise across them and take the modal response, sort of the typical response, we can predict all eight of our situations and get the correct prediction.

STEPHEN LONG: So where are terrorists most likely to strike next?

SCOTT ARMSTRONG: We'd like to study that. We haven't gotten around to doing that yet.

ELEANOR HALL: Professor Armstrong from the Wharton School in Pennsylvania, with Stephen Long.

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