

## SECTION 3

LISA: OK, Greg, so I finally managed to read the article you mentioned – the one about the study on gender in physics.

GREG: About the study of college students done by Akira Miyake and his team? Yeah. I was interested that the researchers were actually a mix of psychologists and physicists.

That's an unusual combination.

LISA: Yeah. I got a little confused at first about which students the study was based on.

They weren't actually majoring in physics – they were majoring in what's known as the STEM disciplines. That's science, technology, engineering and ... Q21

GREG: ... and math. Yes, but they were all doing physics courses as part of their studies.

LISA: That's correct. So as I understood it, Miyake and co started from the fact that women are underrepresented in introductory physics courses at college, and also that on average, the women who do enrol on these courses perform more poorly than the men. No one really knows why this is the case.

GREG: Yeah. But what the researchers wanted to find out was basically what they could do about the relatively low level of the women's results. But in order to find a solution they needed to find out more about the nature of the problem. Q22

LISA: Right – now let's see if I can remember ... it was that in the physics class, the female students thought the male students all assumed that women weren't any good at physics ... was that it? And they thought that the men expected them to get poor results in their tests.

- GREG: That's what the women thought, and that made them nervous, so they did get poor results. But actually they were wrong ... No one was making any assumptions about the female students at all. Q23
- LISA: Anyway, what Miyake's team did was quite simple – getting the students to do some writing before they went into the physics class. What did they call it?
- GREG: Values-affirmation – they had to write an essay focusing on things that were significant to them, not particularly to do with the subject they were studying, but more general things like music, or people who mattered to them. Q24
- LISA: Right. So the idea of doing the writing is that this gets the students thinking in a positive way.
- GREG: And putting these thoughts into words can relax them and help them overcome the psychological factors that lead to poor performance. Yeah. But what the researchers in the study hadn't expected was that this one activity raised the women's physics grades from the C to the B range. Q25  
Q26
- LISA: A huge change. Pity it wasn't to an A, but still! No, but it does suggest that the women were seriously underperforming beforehand, in comparison with the men.
- GREG: Yes. Mind you, Miyake's article left out a lot of details. Like, did the students do the writing just once, or several times? And had they been told why they were doing the writing? That might have affected the results. Q27
- LISA: You mean, if they know the researchers thought it might help them to improve, then they'd just try to fulfil that expectation?
- GREG: Exactly.
- GREG: So anyway, I thought for our project we could do a similar study, but investigate whether it really was the writing activity that had that result.
- LISA: OK. So we could ask them to do a writing task about something completely different ... something more factual? Like a general knowledge topic.
- GREG: Maybe ... or we could have half the students doing a writing task and half doing something else, like an oral task.
- LISA: Or even, half do the same writing task as in the original research and half do a factual writing task. Then we'd see if it really is the topic that made the difference, or something else. Q28
- GREG: That's it. Good. So at our meeting with the supervisor on Monday we can tell him we've decided on our project. We should have our aims ready by then. I suppose we need to read the original study – the article's just a summary.
- LISA: And there was another article I read, by Smolinsky. It was about her research on how women and men perform in mixed teams in class, compared with single-sex teams and on their own.
- GREG: Let me guess ... the women were better at teamwork.
- LISA: That's what I expected, but actually the men and the women got the same results whether they were working in teams or on their own. But I guess it's not that relevant to us. Q29
- GREG: What worries me anyway is how we're going to get everything done in the time.
- LISA: We'll be OK now we know what we're doing. Though I'm not clear how we assess whether the students in our experiment actually make any progress or not ...
- GREG: No. We may need some advice on that. The main thing's to make sure we have the right size sample, not too big or too small.
- LISA: That shouldn't be difficult. Right, what do we need to do next? We could have a look at the timetable for the science classes ... or perhaps we should just make an appointment to see one of the science professors. That'd be better. Q30
- GREG: Great. And we could even get to observe one of the classes.
- LISA: What for?
- GREG: Well ... OK maybe let's just go with your idea. Right, well ...