**Student perceptions of online practical science**

**Vic Nicholas:**

Practical science is a key part of any science study and at the Open University we deliver a lot of our modules online. Therefore we need to be able to do practical science online.

Anecdotally students were not entirely positive about doing practical science online. They didn’t necessarily see the value of it. They felt that it wouldn’t be real practical science compared to a laboratory setting. However, when they studied one of the STEM modules involving online practical science we found that students were keen. They saw the value of the practical work that they had done and they wanted to do more of it.

The aim of that eSTEeM project was to capture that shift in perception from being uncertain and not really fully signed up to it to be enthusiastic and wanting to do more. The eSTEeM project was primarily focused on capturing that shift in perception from being not fully signed up to doing practical work online, not seeing the benefit of it and then being keen, seeing value and wanting to do more of it.

There were two main phases of the project. The first was a small scale telephone interview. There were tutors and other people involved with the module who were familiar with the module who telephoned students, about 20 students, before and after studying. So we were able to have conversations that were structured but quite free flowing about how the students were feeling about doing practical science. How they were feeling about online work and doing practical science online. So three sort of aspects there. And the interviewers asked them about this before and after they studied the module.

Then the second phase was to take information from those telephone interviews and we constructed an online questionnaire. Then we put this online questionnaire out to about 1000 students, so a much larger population. And it was quite a short questionnaire but it gave us lots of valuable information. Again this was carried out before and after study.

The main findings of both phases of the research were to confirm what we had known anecdotally which was that there was a shift in perception of that students started off not feeling very positive about doing practical science online. Not thinking it would be very real. And then they ended feeling much more positive about it. They could see real benefits to the work. It felt like real science to them. And they wanted to do more practical science online.

One of the main impacts of this research is that the STEM Faculty now has a much better idea, a quantitative idea of how students feel when they’re studying practical science online. We can see from this research that students have got that shift in perception and because of that the module teams and tutors can encourage students to say, we know you might not be feeling enthusiastic about it at the beginning but we also know that most people tend to feel enthusiastic about it at the end. And they see the value in this work.

One of the physical outputs of this research project has been a book chapter in this book all about mobile learning in STEM subjects. And this shows some of the wider interest in the higher education sector about looking at how we deliver STEM subjects in using mobile learning.

In the Open University we will certainly as a result of this project, certainly be able to include lots more practical online science in our future modules because we know that students value it. And we know they enjoy doing the work and we know that that’s therefore valuable for them learning science in STEM subjects online.