Yeah, I teach in the School of Applied Psychology and within our school we have various courses within our program. But one of the very important and special courses, I guess you’d say is that in research methods and statistics. We actually – it’s an important course because we have three courses within the undergraduate program. They’re all core courses, and many of them function as prerequisites for other courses. It’s a special course in the sense that students we have come from largely arts and humanities backgrounds and they are not very strong in maths or science. And so they approach statistics with a little bit of trepidation and negative attitudes. Many find statistics to be anxiety-provoking, they find it to be difficult, they find it to be boring, and they don’t really see the relevance it might have towards their degree. So as educators we need to be aware of these perceptions that students might have towards a particular course. We also need to be aware of how we want to teach our course. And when it comes to statistics and how it’s applied in psychology, well, it’s more than just theory. Rather, we want to develop statistical literacy in our students so that they can apply statistics and see the practical application it has for their discipline.

So these negative attitudes that students might have can present a bit of a problem when it comes to teaching the students and to enhance their learning. Negative attitude influences their learning, so they might procrastinate when it comes to engaging in assessments or lectures and so on. Students may also adopt inappropriate types of learning strategies, so they can focus on assessment rather than focusing on mastering the course content; they might adopt more surface learning approaches rather than deep learning approaches, and this could impact upon their overall learning in the course. And if there is a big impact then – if it has a negative big impact, then it can influence their progression through their degree. If they might fail a course, then because statistics is a prerequisite for other courses in the psychology program, then all of a sudden they are halted and they need to repeat the course to fulfil the prerequisite requirements. So this can have a big negative impact on retention in our program.

So to address a range of these issues with our research methods and statistics courses in our program we’ve developed a number of initiatives in our program. One of these is where there is a My Virtual Stats Lab which you can see there, and that’s a splash page that’s been developed within the Blackboard environment. And we’re pulling together a whole bunch of resources to help our students to enhance their engagement and learning in these statistics courses. Now maybe at another time or another place I’ll talk more about this website in general, but for the moment I just wanted to talk about one approach that we’ve used and which has been integrated in the My Virtual Stats Lab, and this is the use of interactive computer-based simulations. We have at the moment about 14 of these simulations, and an example of one is shown here on the screen. So on the left hand side
we have the actual – the simulation itself, and this can be written in Java script or Flash. And you can see some of these types of simulations on the Web already developed by other people. But I think what makes our simulations unique is what’s on the right hand side. So we have a whole range of questions as well as sort of instructions for the students. So the simulations are student-centred. So the students take control of their own learning. They can access these simulations through the Blackboard site and do that any time of the day or night. They are interactive, so students are able to change data sets, manipulate values, and see what effects it has on statistics in real time, and how that can influence their interpretation of those statistics. They are scaffolded, so each interactive has these instructions which guide the students through the interactive. It helps them to see what the functions of it are, what the capabilities are, and how they can use it to full advantage. It has self-assessment. So each interactive has at least 10 questions associated with it. Students will interact with the simulation, they’ll answer the questions, and they’ll get feedback on their responses so they can reflect upon that feedback and get some guidance on what they might need to review. And finally, the interactives really look at functional knowledge where students just need to memorise different types of terms and so on, rather we’re looking at how well students can apply their knowledge to apply it in interpreting statistics, and how it might influence when they look at data in different ways.

We have looked at the impact of these computer-based simulations. Some advantages had been shown to occur in that they are accessible – so of course they are available on the Web, then they are easily accessible by students. They give fast feedback – so students get feedback every time they answer that question and seek the feedback. We can track progress – I’ve used these simulations as summative assessments and also as a formative assessment. And when used as summative assessment it’s linked to a database of students, and I’m able to see which interactive students have attempted, which ones they’ve passed, and which ones they still need to attempt. And so I’m able to use that information to help guide students, and therefore guide them through to make sure that they do attempt all of them. When used as formative assessment, then we can also track their progress as well through the Blackboard learning site. And it also promotes independent learning. So through the scaffolding, through the use of review questions, and students can really take control of their own learning. What I generally do is I’ll use these interactives within my lectures, so I’ll help model the way that they could be used and the types of things that they can get out of them. This then gives students sort of a nice model to then go off and do their learning on their own.

We also conducted a more formal assessment of this approach. So we obtained a random stratified sample of students. Interviews were conducted with these students by an independent person. I didn’t know who actually participated, for example. And we did qualitative coding of those interviews, and it was found that students reported that the interactives improved their understanding, they found them motivating, they found them interesting and engaging, and a significant proportion said that they provided a good visual aid to learning. So they really were able to show these statistics in action right in front of their eyes. We are also about to undertake a more – a different approach in assessing the impact by using a sort of a treatment-based or experimental approach to see
what impact it might have specifically on learning concepts. These interactives are also noted on these psychology educator network as an example of innovative practice.

Thank you

End of recording