From #fitspo to medicine - Research in 3 minutes and thinking about your own project

Flinders University student panel

How many words does your SACE Research Project have to be? Does anyone know?

About 2000 words. Ok so a PhD is about 100,000 words. So these guys here are working towards writing a huge project that’s about 100,000 words. So they’re pretty good at research and putting it all together which is why we’ve invited them along here today.

So when we think about the PhD we think about research, the Research Project. There’s actually quite a few similar things between these two things. Both of them involve creating a question for a project that you’re setting out to answer. And they require you to do research to learn more about your topic; analyse that topic; and come up with some kind of answer or solution to the question with your opinions thrown in as you go.

So they require you to think about the research that you do and then present your findings on the answer. So just like Stephanie and Lawrence, you’re going to have to do a lot of research too which is why you are probably all here. So you might have to design an experiment to answer your question or interview people or you might ask some people to complete a survey so that you can gather primary data. You might go on the internet to learn to read a lot of things that people have written about your topics on blogs and on journal websites. And you’re probably going to have to go to the library as well to read a lot of books and articles. One thing I will tell you is that if you’re in Year 11 or 12, you can actually join the Flinders University library for free. The other thing that we need to remember as well is it’s really good to note that your opinions are very valuable when you’re putting together your SACE Research Project so you may discover things that you don’t agree with or you may find surprising results throughout your research. Things that were unexpected to you, that you didn’t perceive or recognise at the start of the project. I know that the people who are grading your SACE Research Project want to see your development at criticising an argument or being critical of an argument or showing the pros or cons to something but really engaging with the question in that way so it’s really important to think about that. And I’m sure that Stephanie and Lawrence have also had that experience where they might have discovered things that they didn’t know at the start that was quite surprising to them. The other thing to remember as well with writing up your project is that just like Stephanie and Lawrence you’re going to have to do a lot of drafts. So it’s really good in the folio sense where you get to write the process of your research and how you’re doing it in your folio. But when you’re writing a big document it’s really good to give it to your teacher to have a look over or get your parents to help you or your older siblings or a friend. Or get someone who knows to proof read and check what you’re saying to make sure that it’s clear and that you’ve translated all of your research into something clear for people to understand.

So what they’re doing is really fascinating and at Flinders University we have a little competition called the 3 minute thesis competition where students like Stephanie and Lawrence have to boil down their 100,000 word thesis into an entertaining and engaging 3-minute presentation. So it sounds pretty hard but we’ve actually got them here today to do that for us because we think it’s pretty special and we wanted to share that with you just to show you how you can be doing some really really intense and deep research but the way you translate that research to people and the way that you engage people with it is actually very very useful to get some skills on how you can do that. So I might get you to welcome Lawrence - he’s going to give his 3-minute thesis entry first. Lawrence is a Spectroscopist from the School of Chemical and Physical Sciences at Flinders Uni and he’s doing his presentation called the Molecular Song.

So here on earth everyday, no every minute, every moment we are flooded by light. Photons from out of space, from distant stars that travel through atmospheres, gas clouds, molecules to reach us. And we can measure this light, we call this a spectrum. We call lots of these spectra, we call ourselves spectroscopists and our pursuit spectroscopy and my research is on molecules like this one. It’s called toluene, we take it expand it into a vacuum chamber, isolate it and interrogate it by shooting it with lasers.. [laser sounds]

Where every colour of laser we use is just a different question to the molecule and if it likes our question, it gets so excited that it starts wobbling. And one of the ways that it can calm itself back down is by projecting light in all directions. And this is how we make the molecules sing. We asked what colours or energies excite you and then listened when it sang to relax. And then we start to plot, all the questions we asked on one axis and all the answers the molecule gave on another. And we build up this transcript of our quantum interrogation. But though it looks really pretty, what is it actually telling us? Well just like you strum and a guitar string vibrates, a photon of light strikes and a molecule vibrates. And in the same way a guitar has a set of all the different notes it can play, so too does the molecule. Now when I look at these splashes of colour on the spectrum I see musical chords, mixtures of notes describing the movements of the molecule. Chords in the molecular song.

And using this technique we’ve made new observations which have led us to discover a previously overlooked interaction. When you have this Methyl group, they’re circled free to rotate relative to the rest of the structure, it changes all the notes in your molecular song. And this breakthrough has led us to not only understand and identify the spectra of molecules containing this interaction but more importantly we’ve learnt something about the behaviour of molecules. So if you wanna predict or manufacture an outcome the first thing you need to do is understand the behaviour of your system. Methyl groups are possibly the most common thing on a molecule in chemistry. This interaction could be key to designing a new drug, medicine or technology. But that glory is for somebody else. I’m just interested in what makes molecules like this tick. How they work. And my research as a spectroscopist will continue me down this path, providing new observations for physicists to test their theories, interactions for chemists to explain their reactions and understanding for nanotechnologists to develop new materials. We are laying foundations for others to build on. Thank you.

[Applause]

Ok I’d now like to invite Stephanie who’s going to come forward and give her presentation, titled #fitspo – the impact of online fitness culture.

Hi I’m from the School of Education. Have you ever taken a bum selfie? Well I’m interested in bum selfies and I’ll tell you why. Three years ago a friend of mine introduced me to a new online trend, fitness inspiration using the hashtag #fitspo. She had posted a picture of her bum on Instagram in tight-fitting underwear, labelling this a fitness transformation photo. That’s when I had the thought, how do young females use social networking sites for fitness? Popular media indicate that online fitness culture is a trending topic with speculated effects linked to narcissism, unrealistic body expectations and decreasing physical activity. The aim of my research is to explore how young females use online fitness culture on Instagram and Facebook.

It examines three critical things: the perceived positive and negatives aspects of online fitness culture, how health and fitness ideas are transmitted through online interactions, and how online fitness culture influences the health practices of young females. So to explore this, I gathered data in two ways: first I became a participant within online fitness culture, gathering information about what was happening online. This participant observation and data collection method is called a Netnography. Secondly I conducted 22 individual interviews with female participants from around Australia. The results of my research challenge some of the negative views of the online fitness culture as the girls found #fitspo a positive, inspiring and motivating experience. However, negatives linked to body image and self-esteem were noted. Another concern was health literacy. As the girls were unable to differentiate between the credibility of the information they found online. This is a real problem. With other research finding that 66% of young people are trusting the information they find online and modifying their behaviour because of it. My research is significant because it is an original examination of online fitness culture. It is important because it will help inform health education policy. So next time you think about posting a fitness bum selfie, you might be inspiring someone to research.