

The Research Experiences of an intercalated Veterinary Student with Ellie Best – podcast transcript

00:00:00 Jonny Barnes

Welcome to the BILT broadcast. Today I'm here with Ellie Best who is a fifth-year veterinary science student with an intercalated Master of Science in global wildlife health and conservation. Ellie won the PVC Choice Awards for best presentation at the BILT Festival of Undergraduate Research recently, which is very exciting and today we're here to talk to, we're here to talk about research rich assessment hello Ellie.

00:00:31 Ellie Best

Hi, hi.

00:00:34 Jonny Barnes

So, Ellie, my first question is, when did you realize that research was sort of part of your degree?

00:00:40 Ellie Best

Yeah, so I feel that I've always sort of had an interest in asking lots of questions, that sort of thing before I, I sort of got onto the course and things, but uh, I know the first couple of years of our degree isn't really focused on research as such, it's more sort of learning the knowledge and obviously everything getting you ready to be a vet. But I remember sort of picking up on some of the more, what I found more interesting in our sort of biochemistry lectures quite early on, I thought oh that's something I'd quite like to know a bit more about and but again, we didn't really have the opportunity to do a sort of I guess research project until you sort of got to 4th year.

So it was really through intercalating that I found my sort of passion in research, that was really sort of my entry into research.

I knew that I always sort of wanted to intercalate, but on the masters we had the opportunity to do the three month research project, so that's something I really liked about Bristol when I applied, was the fact that we could intercalate, and we could do this sort of extra year of research and things, and I remember taking some of those concepts that I'd picked up on from sort of second year and thinking, oh, I wonder if I could make a research project about this and did the three months on the masters and then, uhm, yeah, absolutely fell in love with it. And that was when I decided that I wanted to go into research and do a bit more of that, and then I sort of tried to follow that through, obviously on the vet course, there's quite a lot of opportunities to do EMS and through the Inspire scheme as well, there's lots of really great initiatives that I'd sort of heard about a bit and tried to get involved in, like the Inspire Student Journal, so I'm an editor for that at the moment and the podcast and things. So really a lot of extra curriculars that are available to vet students and then, obviously, we sort of had the added chance in fourth year to do a knowledge summary and which is a desk-based research project I guess like, kind of like a literature review where you can come and sort of find out the answer to a clinical question. So, it was kind of more related to the vet degree rather than sort of pure lab research, which I quite liked, you got a bit of a taster of both I guess through intercalating and doing some pure lab based research and then in fourth doing a more clinical and clinically, clinical application, I suppose of that research.

So, yeah, that was that's why, I'd say was sort of route I guess into research, yeah on the course.

00:03:02 Jonny Barnes

Oh, that's really interesting how you've got sort of your desk-based research and your clinical research.

So how do you think, when you first came up to your Masters level research given that you hadn't had as much experience sort of further down, how did you feel about that? Talk me through what were your thoughts then and what your thoughts after?

00:03:28 Ellie Best

Yeah, it was really scary at first. I sort of felt because obviously on the masters you've got people who come from all sorts of different backgrounds, different degrees, different levels of experience, and so I sort of felt oh gosh, am I gonna be well equipped to do the research that I wanted to do? Because my research is more, sort of, it's very lab-based. It's quite antibiotic biochemistry, rather than directly related to veterinary, that side of thing. So, it was quite different anyway, and so I was really, really nervous.

But we did have quite a lot of teaching on the Masters about sort of basic things like even, even in the early years of the vet course, like how to run a literature search and things like that were really helpful, the library, workshops and things. And so, I sort of remembered going back to that and just thinking, OK, let's take one step at a time and then just my supervisor was really supportive and went through everything with me and so although I was really nervous to start with once I started doing the research and actually got in the lab and did stuff, I thought, oh, actually this is this really doable! I'm learning so much and I learnt loads and I absolutely loved it. I really, really, really enjoyed it! So afterwards I sort of felt a lot more confident in the sort of stuff that I was doing in my research, like I can find my way around the lab now, so that's good. I definitely feel more confident afterwards and I felt that we did have quite a lot of support and I didn't ever feel like I was disadvantaged, not disadvantaged, but not come prepared enough, if that makes sense, to do the research there was always support available.

00:05:05 Jonny Barnes

Yeah, that's really interesting and it's great to sort of see your progression that once you were in their lab, you're like, oh, I, I love what I'm doing, I know what I'm doing now.

So, I guess my next question would be how did you, so you've had this research as part of your course, how did you translate that into what you presented at the research festival and turn it from sort of part of your course part of your curriculum into sort of extracurricular?

00:05:34 Ellie Best

I would say, I sort of carried it on past the end, so even now, I know that we had to do that research obviously, as part of our Masters and that was the sort of basis of my report that I presented at the festival, but I've been, even literally today, I've just got back from being back in the lab again.

So, I'm I've, I knew that I was really passionate about this project and about this research and I wanted to carry on. I didn't want to let it go because I thought, well, we've got something really good and really exciting here and I love it and I want to carry on and see it through to the end. So, I really, after finishing the course I said, I spoke to my supervisor and just said look, can we sort of carry this on? There're a few

other avenues I want to go down and he was like, absolutely, and so I would say just yeah, I tried to sort of carry it on get as much more information as I could, so far.

Obviously, it was difficult because of COVID and everything, so getting back on lab wasn't always that easy, so we've sort of run a bit behind. But yeah, that has formed the basis then of what I presented at the festival, sort of the mixture of the stuff from the curriculum and then the extra stuff that we'd found out along the way. And just getting extra pointers and things and even learning, what I've learnt from then and becoming more confident in presenting my research I thought was really helpful.

00:06:56 Jonny Barnes

Oh, that's great so, so where do you feel that your research is going to go in the future? So, I think you're in the last year of your course, where do you think you're going to go next research wise?

00:07:11 Ellie Best

I would love to carry on in research, I do love it. So, what I'm hoping to do is sort of, complete this reset the, spend my summer now before I start work in September completing this side of this project, the one that I presented and get that sort of finish and hopefully work towards publication, fingers crossed! That would be really nice.

I'm gonna do a sort of a year, couple of years in practice, I think first and then, I know that there's a few doctoral training programs and the clinical primary scheme that's run at Bristol. Which is a great program that I've heard about from some other vets that did it a few years ago and they said it's sort of a six-month pure research program that really helps your transition I think from clinical practice into research from what I've heard. So that would be something that I'm really sort of hoping to do in the next couple of years and then go from there. Hopefully get a PhD and yeah, see if this research, this research goes anywhere, so fingers crossed! That's the dream!

00:08:11 Jonny Barnes

That's really exciting. So just for people that weren't at the research festival, roughly what was your project on briefly?

00:08:19 Ellie Best

Yeah, so it sounds really boring, but I promise it's really fun and cool! So, my project was on the use of, so obviously antibiotic resistance is a huge problem, and we know that it's probably going to be the next biggest issue that faces modern medicine in the next 10 years. And that was something I really wanted to sort of address and try and find a solution, and I know that lots of people are working on creating new antibiotics, and I've always had an interest in sort of plant medicine and things. And I sort of thought I remembered a lecture we had back in second year on nanoparticles and I thought I wonder if we could use some of the plant properties and put them into nanoparticles and see if that worked against some resistant bacteria. So, my research was on using essential oils, basically, encapsulated into nanoparticles, and seeing how effective they are against the World Health Organization's list of priority pathogens. So that's our carbapenem resistant E .coli, MRSA, Pseudomonas, all of that. So I basically encapsulated them and tested them against these bugs and that seemed to, they worked basically, which was really exciting and we did it against different concentrations and things to see whether we could you know

how strong we could make it or how weak we could make it and yeah, so that was that was sort of the basis of my research, I guess creating a new natural antibiotic of sorts I guess.

00:09:43 Jonny Barnes

Which is incredibly exciting considering the impacts that you might have in sort of the wider health in general like!

Did you imagine that when you first signed up for a vet course that this is what you would be doing?

00:09:58 Ellie Best

Nope, no way. I sort of, it just all sort of happened I guess, I just thought this is a wacky project we could try and then to find out that it actually worked, and there's no way I could have, possibly, ever, predicted this.

I remember back in sixth form, I did a small project on antibiotics and essential oils, but that had nothing to do with nanotechnology or anything. It was a very basic, 'does cinnamon kill E.Coli?' and I remember finding that it did a lot more than some of the other drugs that I tested against. So, I sort of had that in the back of my mind and I thought, oh, that's something I'm quite interested in, but there was no way I thought I could ever sort of apply it and make it a proper trial research project I could do and maybe carry forward.

Yeah, and so we'll see where it goes and but yeah, I'm, I'm really excited about it, as you can probably tell!

00:10:52 Jonny Barnes

That's, it's such an exciting project and I'm, I was so glad that I listened to you at the research festival, it was, you're such an engaging speaker and you dumbed it down enough for somebody who only has an A level in chemistry to understand perfectly, so it was, it was really interesting.

How did you manage to make it accessible to other audiences? I guess is my next question.

00:11:20 Ellie Best

Yeah, that was something that's obviously it's quite tricky because it's, obviously quite a complicated topic and then to sort of. I want, I wanted it to be something that people could understand because there's nothing worse than being sat in a lecture and thinking, 'oh gosh, what's like what's she talking about, I'm so lost', because you sort of just switch off.

So I remember being told that I, to try and make it accessible to like sort of a clever 16 year old and that should sort of be your pitch for any sort of topics, and I guess it helped me not knowing, when I, coming from a vet degree and not having this lab experience on the masters, I was sort of learning it all from scratch, so I just sort of thought what's the most basic way I can explain this? Like how I learnt it basically how I was like, oh OK, so this is how we dilute them and things like that. And then I guess just trying not to use any jargon and I tried to use a lot of diagrams as well. I like my diagrams, so I put lots of pictures in the, in the PowerPoint and made a little, nanoparticle so you could see the layers and things.

And, I don't know, I hope that kind of helped, but just sort of, I guess taking it back from the beginning and explaining how, I guess I basically just explained how I learnt it. Yeah, I suppose, and I'm glad that it came across well and I'm glad you enjoyed it. So, thank you.

00:12:35 Jonny Barnes

No, the research festival, I just loved it, it was great.

Also seeing other people that wouldn't have engaged because they were together, because they were part of different schools or different year groups. Sort of chatting together about their research was really, it's nice to have that sort of relationship, especially during COVID where we haven't managed to build necessarily student research communities as much as we normally would.

So lastly, because you've taken us through an incredibly in-depth summary of how you've got to this point already, do you have any other thoughts or anything else that you'd like to add?

00:13:16 Ellie Best

Uhm, I think, I think the one thing I would like to say about research and science I guess as a whole, is I really underestimated how much, I've always been quite a creative person and I've always been quite into my art and my graphics and even like music and things and like making and creating things. And I never really saw how I could make that fit with science and I would say that was a huge part of my journey into research, I guess from a scientific discipline was just thinking outside the box and being able to use your sort of, it's almost an art form, I guess that type of research, isn't it?

Instead of using a different type of way of thinking to sort of think outside the box, and yeah, really use your creativity to create a research project, and that's something that helped me, that's how I fell in love with research basically. It got to that point, I was just sort of thinking, oh we can just be a bit creative here and just sort of make something up and try it and see if it works and if it does that's great. That was also something that I think we touched on in the, in the research festival, the BILT Festival, that's something that really hammered home. I remember thinking, yeah, that's exactly that, you've hit the nail on the head there. There is a real balance between creativity, research, science. It really doesn't all have to just be, sort of boring and numbers and science. They don't have to be completely different, separate; you can use it together. So, I liked that point from the festival but yeah, but I think that's all I'd like to add.

00:14:45 Jonny Barnes

Thank you very much, Ellie.

You've taken us through a really interesting story covering your research journey this far, particularly your anxieties about first engaging with clinical research, but also your excitement when your experiments were successful. And a final congratulations again for winning the PVC Choice Award for your presentation at the festival of undergraduate research.

00:15:09 Ellie Best

Thank you very much for having me.