

: There were times with the chemists where I was actually having to say “wait a minute, stop. I don’t need to know that. I don’t have to become a chemist. I just need a basic level of information in order to develop my work. I had to keep reminding myself that I’m an artist and a maker first and foremost and my job overlap was to act as an artist in residence and produce work that was inspired and informed by what they were doing but I wasn’t becoming a chemist.

So I would ask a lot of stupid questions but then I would reach a point where it was messing with my head and would just go “No, stop.” (laughter) And they similarly would ask me a lot of questions which was really good, and I actually took the chemists – one of whom did a jewellery evening class before. So I brought them up to Dundee to our workshop and we worked with some of the wax and we made little pieces, little idols for the chemistry lab and made a couple of rings for themselves. So it was fantastic for them to see the other side of things as well. It’s part of what you (A2) were saying about seeing the way the metal gets used as they never get to see that side. So I think you’re (A1) right that they managed to distill the basics for me as a non chemist, things like wearing the coat, the goggles, where to ask questions if necessary: so it was good. I think it does force people to, well all of us to speak in more plain English. I mean there is a place for jargon at times, but in interdisciplinary work, if you can’t explain it in plain English then we’re struggling!

Question 3: Time (32:40)

Karen: The last question: What could be realistic goals for interdisciplinary research in the future in terms of ... (pause)... looking back to our previous discussion there: I’ve seen examples of some PhD students who have 3D printed a model when I look at it and think that it would have been so much easier just to have some lightweight material on a lathe. And for the 5 minutes it would have taken to literally make that thing on the lathe, they’ve spent hours probably 3D printing this object overnight. Would that have been solved if they sat down and had a conversation with a technician or a lecturer, someone, to say, “this is what I’m trying to do, this is the design and actually have that technical discussion about what their intentions are and developing that idea.

Is it as simple as having those conversations? From my point of view there the perceptions people have about other people in the sense that I perceive that technicians are very busy and don’t have much time so its almost like... its also me being a slightly anxious person as well, that you don’t want to take up too much time from people. But would I actually save time in the long run if you sat down or booked a time slot with the person you are dealing with and say “This is what I’m trying to do” and then discuss the solutions rather than nipping in quickly and saying “I’m doing this. Can you make this thing for me? And go from there in quite a disjointed sense”

Anonymous 2: Yeah, we get that all the time, the students will do a CAD drawing and get it 3D printed, and they will come to you with these two bits and say, “They didn’t go together. Can you do something” and you need to drill holes in them and thread them to put them together. And like you say half the time it’s something pretty simple but because they perceive that technicians are busy. If they come into the workshop, there is a list of jobs and we have to work through them, unless there is a

priority on something. And they (students) will just be able to look at the computer screen, and see on the computer screen that they can get it 3D printed and like you (K) say it will get done overnight: they don't have to wait in the queue to get it done. They end up having to wait in the morning till the technicians free to look at their part and maybe modify it. A lot of the times they (students) will have to get it done again: to get it 3D printed there's a cost involved with that as well. Like you say it would be better if they spoke to somebody first.

Anonymous 3: We see it with our product design students: they'll often come into the jewellery department and they'll say, "Oh I'm making a light, I want to make it out of this and its this size." So they've got rough idea, but then ■■■ our technician will speak to them and ■■■ say, "You can't make it because we don't have that gauge of copper. You can't do this because you won't get tube that diameter" or whatever. So there is a lot of discussion and negotiation around what they can and can't do. I think there is a structural thing though within the organization: our courses were modularized a few years ago, and the suggestion at the time was that they were becoming modules so they could fit in with other courses in the university. At one point there was the suggestion that an engineering student could come in and take a jewellery module or a jewellery student could take a module in life sciences or wherever: but that's never happened.

I do feel if we could start that in a small way, it would be really beneficial to enable the students to move about. I think you're right as well about the discussions with technical staff who know how things can be put together and made. But academics having those discussions never mind the students. What about academics that come to you (A2), where they are like "I want this." and its like "nope."

Anonymous 2: I've got an example from years ago: a professor in civil engineering, he had lead window weights: he wanted them smaller but he wanted them the same weight. (laughter) To make them smaller to fit the bit in the window we will have to machine some off it. He says, "Can you not keep them the same weight?" "Well not really no." (A2) (laughter) And he was a civil engineering professor y'know. And he said, "Have you not got a machine that can crush them smaller?" It made me think, this is a civil engineering professor and he couldn't work this out.

Karen: Moving from there, do you feel that there is almost a separation between lecturers and technical staff in projects where you are trying to make physical things in terms of the expectation from people that don't have the making knowledge?

Anonymous 3: Well I know that our students love technicians and they hate the academic staff. They love the technical staff because they get practical support and they hate the academic staff because we have to grade them. And why in art and design we are grading people to be honest I don't know. We would get far further if students were a simple pass, fail or distinction. But yeah they love technical staff because ■■■ will sit with them and explain what can and can't be done and help make their idea a reality. We're just seen as asking difficult questions like what's the concept behind the work.

Anonymous 2: I think a lot of the time the academic staff don't seem to back-up their students enough: like someone will come in with a job and we will say, "We can't make your idea, you will need to go and redesign that. Can you go back and have a word with your supervisor?" And they will go and their supervisor and come back and will say, "oh my supervisor is too busy and can't do this now. Can you help?" And I understand...

Anonymous 3: My supervisor is too busy checking research grants.

Anonymous 2: ... and they seem to just leave them to their own devices a lot of the time

Anonymous 3: I think as well in the university there is a separation between head and hands. Students are seen as empty vessels to pour knowledge into, and they don't seem to understand that knowledge is created through making things, through doing stuff. When the art college first merged with the university I was hugely excited because I thought the university might begin to embrace some of what we do and the way we do things, but in the [REDACTED] years I've been here that hasn't happened. If anything I think its gotten worse. I think there's and even bigger separation: knowledge is seen as something in the head, they don't particularly in our practical disciplines – I think medicine has the same problem- because as you know we are working with human beings who are unpredictable and different. So this separation between –in a craft sense we would call it – head, hands and heart, because for us the way it feels the aesthetic experience is really important as well. So I just feel that the head and the hands in particular have become so separated.

So structurally I really think there is a lot the university could do to address that. You see it in the hierarchy: academics are paid more than the technical staff. What kind of institution would we have if we were all at the same level? - which would make a huge difference to everybody and the institution, but the university's got to find a way of recognizing the value of the practical side of the work, and how theory and practice are integrated and can't really be separated from each other I feel.

That's my rant over with for this morning. Always good to get a rant out before twelve o'clock!

Karen: I think there's been a couple of recent examples of- like in medicine: people needing surgeons who actually have those hand skills, so they've got students that can actually perform surgery rather than having no hand-eye coordination. Astronauts as well, they need to physically fix things and do things with their hands beyond just being intelligent. So its one of these things that you end up needing this balance, particularly if you are working in making practical solutions or...

Anonymous 3: The thing is: its all intelligent work, its just different kinds of intelligence we are talking about and its recognizing that. In the old days, school was very bad at perpetuating that:

academic and non-academic. Vocational is just as intelligent as a lecturer: we're talking different kinds of intelligence and that's the crucial thing. To recognize and value it in the institution, I feel.

What was the first part to the question for the future?

Karen: What could be realistic goals for interdisciplinary research?

I guess it could even be the question of who is responsible for the research? Who is most responsible within interdisciplinary projects? Is it that student that's running between lecturer and technician or is it all three of those members? And how do you manage those project outputs: what's the expectation? Like my PhD for example, I'm technically in Physics but I'm also partly in Design and how do you assess work like that that where its not strictly physics but its not strictly design. How do you try to evaluate something that has qualitative and quantitative data there? How do you evaluate the quality of what you have done?

Anonymous 3: One thing I feel we are short of just now is interdisciplinary spaces to do work, to have conversations, to try things out. In the art college, we've worked hard at trying to make all our workshops open access. So in the part the wood workshop would be more associated with interior design because they would make furniture and things but now all of our students can access the wood workshop, so you're just as likely to find a jeweller or a fine artist student or an illustration student doing something in wood. I would like to see all the workshops across the university become a bit like that, so myself as a workshop could come into your (Fulton) workshop and would be encouraged and welcomed – not that that doesn't happen at the moment – but it would be expected and it wouldn't be dependent on the goodwill of a handful of individuals.

So if there were workshop spaces in all the departments that were open access. I don't know how that would work from a health and safety point of view...but I think its doable. And I think making those spaces open access, the conversations would come about naturally: because its when you start to see, "oh you do that in your place, I do something quite similar. In Dundee I first tried to find some chemists here but of course we'd closed our chemistry department. There's a couple of chemists left in drug discovery so they weren't really doing stuff on [REDACTED] for example, so it was harder to... It was only by chance in a sense that I had done previous work with chemists [REDACTED]

[REDACTED]
[REDACTED]
[REDACTED] But it was only because we had worked with that lab before and there was a bit of a track record that we were able to do something.

So having spaces providing opportunities to talk to each other I think are really good.

Karen: So there's something to be said for having academics and technicians more opportunities to see and speak to each other?

Anonymous 3: Totally, totally

Anonymous 2: Yeah, yeah. When I first started here they used to do a first year student induction in the workshop where they would come round and we would do demonstrations on the machines for them. They used to come with their academic in charge of that discipline and we would have the lathe set up for turning, and the milling machine. The academic talked to them about what was going on: how the tool was cutting and the feed and speed of the tail. They went away and they had actually seen it so they knew how things worked and were held in the machine. But for some reason they stopped that, and we used to send students up to Michelin in first year to do projects with Michelin, but not Michelin are closing so students aren't getting the ground in how things work and how things are made.

Anonymous 3: In the wood workshop the induction they did was actually to get people to make a box out of wood, so they weren't just shown how the equipment worked but you were actually having to use it as well in order to make a box. They did it for academic staff which was hilarious because we were so competitive over who had the best box. It was really good because like I say, it was not just your head that was learning but your whole body that was learning how to make a box: how to physically position a piece on the bandsaw to cut a piece of wood. And I think that's crucial in the induction that you are getting that direct, full-embodied experience of doing or making something that's crucial.

So it's not just a lecture about ... Like with our students we don't just give them a lecture about the properties of copper. We give them bits of copper and hammers and files they learn through their making, they don't just learn through a PowerPoint presentation.

But getting the university to see that difference and recognize that shift can be quite a challenge.

I think health and safety again is another area where you see the organization's values and what it sees as important, and the way in which that health and safety is delivered is crucial.

Karen: I guess within health and safety as well it's a very good way to learn about what you are about to do as well before you do it in a safe way. Doing the laser safety things last year you learn of all these things you wouldn't know otherwise before you begin and then you can have that practical approach. And I guess it is about that balance that you need a bit of theory, a bit of practical ...

Anonymous 3: They need to go together. For me its not one over the other, its about recognizing they are both equally important and they go hand in hand. For your PhD (**Karen**), your fine skills are what our physics colleagues have been looking for: is someone who can work on a really small scale in silver because their students just don't have that kind of experience and knowledge. So its looking at the value of both as being equally important, not one over the expense of the other.

Karen: Okay, has anyone got anything else they are keen so say? ...Nope... (**laughter**)

Well thank you very much...

Anonymous 3: You've put a really good exhibition together. It will be good to get...

Anonymous 1 : Yeah

Anonymous 2 : Yeah, Its nice to actually see what you are doing.

Anonymous 3: I don't know if you've done it already but from the DJCAD point of view we should get an email out to everybody

Karen: Will do

End of recording

Time 53:00