

Group Interview 3: Non-Identifiable Transcript

Time/Date: 10am – 11:30am 1/11/2019

Location: Research Gallery, Level 5 Matthew Building, DJCAD

Interviewer: Karen Westland

Interviewees:

- SSE Academic 2 (SA2)
- DJCAD Technician 2 (DT2)

Audio collection method: Jabra Microphone, connected to University managed laptop

Recording length: 66:25minutes

Editing stage 1: Removed 'ehs', 'kind of' 'I guess' etc from text that do not add any relevant info to help the transcription read more easily

Editing stage 2: Redacted all identifiable information of interviewee participants

Red Text: Audio issues

Green Text: Additional information such as unseen gestures, collective noises such as laughter and pauses

Transcription of Audio Recording

Introduction: Time 00.00

Karen: To begin with we will do a brief introduction of ourselves. So I'm Karen Westland, a PhD student working between physics and design, and we are currently sitting in the research gallery where I'm showing what I've done in my research so far. I've got a year and a half roughly to go so this interview is looking at what I can potentially take on board to move forward with for the rest of the research.

SSE Academic 2: I'm [REDACTED] in physics (School of Science and Engineering (SSE)), and my research is mainly [REDACTED]
[REDACTED]
[REDACTED]

DJCAD Technician 2: My name is [REDACTED] in DJCAD and I'm somewhat out of my depth in this particular project, but I like to think I understand what flat is, a polished surface but not necessarily how one achieves them in this regard but it's certainly been interesting so far working with you so far and beautiful preparation here (exhibition).

Karen: Thank you and I think yourself – like with most of the technicians I have been dealing with – it’s your specialist skills in working with lathes in particular I have been working with you on. Just that general understanding of materials, with a different point of view from what I might have myself.

DJCAD Technician 2: The general miss-procreation of method from one material or another is absolutely key to working at the art college. It’s about finding what’s new about your work, because we have all zapped a bug with a magnifying glass so where’s the development? Well maybe only the cruel ones ... (ref to bug zapping) (Laughter) The same thing applies in woodworking and the way we finish timber: it’s not industry standard, it’s based on what the student is looking at and finding a way of introducing that and even though none of the technicians have any experience in what this one particular person wants to do to this piece of wood but there will be a lot of fun in trying things, whether it be burning or burning with different chemicals or there might be something that’s just unique and different, and it fails completely at the end but it’s the exploration which I think is what links with this project. You can take any project with any materials, but the redirection of methods and thinking is what makes it exciting working at the art college.

Question 1: Time: (03:05)

Karen: Yeah hmm, so we will move into the first area of discussion looking at what are the benefits of interdisciplinary collaboration, which in a way you’ve started to answer that question. One of the things I have found quite interesting is that interdisciplinary projects suggest that you are coming from one discipline to another as opposed to someone like Leonardo da Vinci who’s encompassing many disciplines in the one to try and solve problems. It’s that question of: how do you best approach issues that needs many disciplines? Are you best having many specialized individuals or a mixture of people that can adapt between disciplines?

SSE Academic 2: That’s a really good question put that way... Traditionally the idea of someone who is a polymath, knowing a bit about everything has been one of the big drivers, certainly in science research. Why interdisciplinary research is really good I think is because it brings together two stages. The most basic stage it brings together two different groups of people or two different ways of working where one has a solution to a problem of the other, so it’s a very problem or solution driven collaboration, which is the most practical but least interesting. The other way there is value of interdisciplinary working, is the cross-fertilization of ideas and approaches. In physics we are trained to identify a physics problem that you want to investigate, you identify a range of approaches that might solve that and then you start tackling those. Whether you have succeeded or not, whether you have answered the question or not is typically black and white and its measurable, it’s based on something measurable. Whereas I think from art and design it’s a much more flexible in terms of trying things and promotes a playful approach, which is something we do do in science but it is much less...

DJCAD Technician 2: Of course it depends – sorry to hijack- on the character or the characters that you pull together: it's not necessarily a physicist, a woodworker, a ... but its people you can work with and people who understand. The flexibility of the parameters is your bag not the individual coming to your project. It's your project so you want to see creativity and flamboyance, or not. You want to see discipline and dedication to their true, what they are themselves. So it's up to you as the leader of the pack to set the tone. I was thinking your (SSE Academic 2) description at the beginning: identify the problem and then bring a set of tools to bear ... is a woodworking, metalworker, is a jeweller, is a gardener, is a cook, is an everything that someone's craft up, as opposed to industrial mechanization. Once they've set something in motion that's it. Just speaking from my own experience in the art college is endless flexibility in order the bend to the whims of the students who are the client, who are the only reason the university exists, so for me it's the students, its paths bending. We all in the art college know a bit of everything because we have bent in so many- if you have been here a decade or two – you have bent in so many directions so many times but you have learnt to! If a student goes, 'I've got something pretty crazy to run past you.' and you go, 'No, it won't be.' Y'know, I have no idea what it will be but no it won't be crazy. I will have never seen it before but it'll not be crazy, and that for you to pull the characters together: is it going to be a fun environment or a disciplined everyone in at nine o'clock environment, it's all down to you.

SSE Academic 2: I think that flexibility has to be there in pretty much all academic thinking at least because it is the whole point of why you want to be in a university compared to in a company. In any university you have that flexibility to try different things and solve different problems and hopefully work on things that you enjoy, whereas in industry you are much more focused on...

DJCAD Technician 2: what the bottom line is (Laughter)

SSE Academic 2: So you solve...

DJCAD Technician 2: 'When will it be ready?'

SSE Academic 2: Exactly, you solve problems for profit. The whole thought process is driven by, 'Should I look at this? Does it have the ability to cut costs? Does it have the ability to make more profit? If the answer is no, then you don't even look at it. Which is a very different...

DJCAD Technician 2: Almost like the Ikea white room: where there's no phones, no colour, everything's white, wallpaper is white, there's no electronica, there's no coffee, there's no water, there's nothing. It's just ten people round a table and one idea to solve. And that's sort of taking it too far almost, but at the same time that might be quite an interesting way to work. Ten o'clock everybody's there, all you have

are pencils. There's no connection to the internet, there's no phones, there's just what's in your head, put on paper in response to what's written, might be an interesting way of working.

(Hmm noises of interest and thought in response)

Question 2: Time:(09:29)

Karen: That again ties in quite nicely with the next...

DJCAD Technician 2: Well you've laid the questions down in front of me, I mean, I'm going to have to!

Karen: Yes, (Laughter) How can different disciplines communicate better with each other? As you say, is it a matter of setting time aside to communicate in an efficient way with other disciplines. One of the interesting things today is that two of the other interviewees, about a hour before this was due to begin both said they were too busy and had other things come up. Is that one of the challenges you have to overcome for projects like this where you need to create that time and space and have meaningful conversations? From my point of view, when I'm dealing with technicians from different areas, whether it's the Fulton, Makelab or in the general workshop: it's that question of how much time you have with that individual. Should I be booking time in advance to really sit and discuss my project with them instead of just dropping in out of the blue with your project and hope for someone's time. How can that potentially improve or just to generally improve communication?

SSE Academic 2: I think communication between disciplines comes down to people, it comes down to the right group of people. It comes down to people wanting to because we all have loads of stuff to do, we can always find a reason not to do something, there's always that opportunity to say, 'I'm busy because of..' and its more about turning round and saying, 'I think this is valuable because...' because we get something out of it, because there's a benefit to the way that I think in some sense, it helps me think flexibly and more broadly compared to the very narrow focused experiment driven or goal driven physics research if you like or experimental physics research.

That's probably how you get people to communicate better because there's not really an answer but it's basically about finding the right people. I think you get some people who say, 'I'd like to' but then when it actually comes down to crunch time they are just busy, they'll find some other reason.

DJCAD Technician 2: Yes, there's some people in the college who double book because they just want to say yes to everybody but in actual fact there's too much going on and last-minute stuff. I think the way that you've (Karen) dealt with it though has been fine. From my point of view the drop-in is probably ideal because everything is dropping in all the time so if I was to say, 'Yes ten o'clock tomorrow morning'

well nobody else knows that, how do I advertise the fact that I'm not available at ten o'clock. My student walk past the sign that says, 'no more students, workshop full'. They walk past, they negotiate their way past that sign: they don't read it. So dropping in is fine because often it's just a question: it doesn't need an hour or half-hour, it just needs a, 'what do you think of that?' 'It's rubbish.' 'Fine.' Move on.

Karen: Its interesting as well between workshops, the expected approach is to just drop and ask a question as you say, whereas with members of academia: lecturers etc, from my point of view I always imagine you email them to ask to try and book a time or at least meet them to book a time

DJCAD Technician 2: Totally. For me who experiences undergraduates who constantly let you down. When none of them turn up or if all of them turn up, can you imagine how to set out your day based like that? I'd either be swamped or... The drop-in: it's your degree and I'm here, regardless of undergrad, postgrad we are open so come use us.

SSE Academic 2: I think in terms of building collaborations across disciplines you probably need both. So one of the big things is to make sure that people actually have time to sit and think about problems together and that requires some set aside time to sit down and think. But the problem is probably that you want to start with a goal that is hopefully solvable by bringing together a particular set of people, because I think without that you're probably back to the 'what's in it for me?' type question where people start to say, 'Well it might be interesting but I've got so much other competition on my time, do I really put time into it?' That might be the first step of getting people out of their offices, out of the day-to-day marking, classes, meetings, dealing with problems way of thinking. Or if you have any other time focused on your research to say actually its worth investing some time in something else. So to get collaborations started, one of the best ways of doing it is to have some kind of problem that you want to get a group of people to focus on and then say 'let's bring people together' book a time, we're going to go sit and do that... like the Ikea white room idea. Once its established, I think it depends: the more formal meetings are very good for making sure that projects are making progress and making sure that you are working between disciplines and that you are making it work well. But in a way the magic happens typically in a much more informal way. I think formal meeting are great for benchmarking the use of your time but are fairly useless for the inventive and imaginative solutions in a sense.

DJCAD Technician 2: It's interesting that there's two sides to the coin. Speaking entirely from the disciplines of DJCAD- there's either, 'work that's going to come from this conversation' or there's, 'advice flowing from this conversation. Advice flowing from the conversation can be very efficient and you can get through twenty people in a day just giving advice. Jobs coming

towards you which you end up being physically connected to have this... because A: they haven't been done before by you or B: it's an open-ended engagement, physical engagement. You'll have some people go 'I'm now too busy I can't take on any more work, I can't take it on because then the ones that I've promised are now going to suffer.' So how to I work my balance. The busier the college gets and the more interdisciplinary it gets, the less physical time I can give to each project. Which in some regards is good because it frees up my day to just advise all day long rather than getting stuck in a thing where I'm building thirty plinths for textiles or illustration because they've got a show and I stupidly said, 'yeah I'll give you a hand with that.' and before you know it I'm doing all of that and not actually helping. And you go, 'How did I manage to find myself three days down?' and maybe you're (Karen) at the door asking questions. So it's keeping those advice givers free of getting bogged down, to keep it interdisciplinary. Or you just go, 'Look I'm just going to work with this bunch, the rest of you come see me in January.' You have the two competing sides of the art college, some would love you just to do that, and some would love you if you wouldn't do that. You have to find a...

SSE Academic 2: I think there's the other side to this whereas an individual you are only as good as your skillset in some sense, or your way of thinking, your ideas or whatever, and so on top of advising and directly helping, you need time for yourself to develop your own ideas, thinking and practice. So for example I know I have got so much worse at building lasers because I have so little time to go into the lab and do it. And that has a knock-on effect because it means that my judgement of whether I think a particular way of solving a problem will be easy or hard is much less accurate, and the whole thing cascade through. Again its one problem that as you get further up in the university you spend more and more time doing things that perhaps have less immediate impact on things that can directly affect: your research, your teaching, and those things start to become, meetings, management meetings that type of things that has an effect on your ability to keep yourself skilled up and fully current.

Karen: In a sense with this project as well, now that I've been focusing on making those small concentrators...

DJCAD Technician 2: Excuse the pun (Laughter)

Karen: ...Yes. I've learnt how to use a lathe and those skills are definitely increasing, but in terms of my general silversmithing skills that inform the research, it's been a while since I've soldered something on a large scale. And so as you say, a you focus on certain things, your other skills start depreciating.

SSE Academic 2: It's so important that in any work that you do keep those bits current as well, but particularly where you are working interdisciplinary where you are going to be learning a whole set of new skills and pushing out in new directions it's really important to make sure you keep your core skills strong as well.

DJCAD Technician 2: On the tools: how the joiners would refer to 'the joiner who starts the business who ends up literally somebody who does drawings and argues.' and that's how I started doing my (inaudible word) business as a [REDACTED] and two years later I was office bound. Men in the workshop were having a great time and I was office bound in meetings, money, meetings, money ... and it was just like this... just not what I wanted to do. I wanted to be on the tools: how do you do it and not be on the minimum wage, it's quite difficult. There's a nice balance if you can find a few days where you are still sharpening tools and you are still on projects and a few days where you're not and that's where I've found myself. This is my day off, Mondays, but it's a day I put into as much: I'm steam bending this afternoon, I'm on my way to pick [REDACTED] after this meeting, and you just have to keep on it, keep on it and push it. And all of that then knocks back into the students: the better I am on the tools then the better the advice I can give. We have to maintain a balance and not lose sight of ... two years ago it was a core element, and now for some reason it doesn't appear to be a core element anymore, so you've lost that, it's a loss. You've got to fight for these things.

Karen: Would you say it's important to maintain the motivation for the work you do in the sense that I think it could be very easy to get bogged down in all those people demanding so much from you in different ways. And if you're saying you use your Monday to nurture that stimulation in the work you do that can inform the rest of...

DJCAD Technician 2: Well the stimulation happens everyday because that's who I am but you're right, getting your time together to do things. But often we worry about these things too much and in actual fact you can get a lot more done in an hour than you think you can, but because you have worried about it for a fortnight previous to squeezing the one hour into your diary for me, in actual fact you can get a whole load of stuff done because now you have brought your tools to bear. If you had just done that a week ago. Or in actual fact you should've done it a fortnight ago.

There's a mental battle amongst all of that because once you are operating on machinery or your tools, you are in a different headspace to the manager who is trying to pull together lists,

remembering times and the stresses of the wider project. Break it down into separate parts and then you can let your focus in or let your focus off, so that you can focus in.

(24:34)

Karen: Do you have any good or bad examples of communication between disciplines. I'd imagine [REDACTED] (DJCAD Technician 2), you've probably got a lot of good or bad communications from students coming to you with different projects. I guess from my point of view for this specific project it was quite difficult to begin with in approaching technicians because you don't already have examples to try to explain what you are doing, you are trying to verbally communicate it or have a small cross-section of the optical component you are trying to make. Is it important that someone communicates verbally, or that they have a sketch or CAD drawing. And from your (SSE Academic 2) point of view does it help to be out with pens and pencils to try to draw out how an interdisciplinary project is going to work? Even from the ratio between the disciplines, when you are outlining how much of that project is going to be defined and how much freedom you have: how do you communicate that within a project? This project for example: how do you communicate [REDACTED] what those expectations for the project are?

DJCAD Technician 2: With all these things, the staff who are listening, need to as quickly as possible get up to speed and not spend hours trying to get up to speed. So everything that you can do as the student that promotes that member of staff's getting up to speed. That speed is led by you, the student, who is telling their story, and if a model, a bunch of maquettes, a sketchbook and a film help then that's essential. Standing at the door with nothing means that I'm going to have to try to imagine with your words and my busy head. But that <moves wooden cube on table forward> ... that's what I want to make.

Karen: Yup

DJCAD Technician 2: I didn't have to say the words, 'cube', 'scale', I just had to show you the maquette, here's the drawings and here's the back story, here's my elevator pitch and this is why I've come to you: because I don't know how to make that (wooden cube) into that <moves a wooden cuboid on table forward, alongside wooden cube > y'know. The maquettes speak a design language which is essential, and I think that goes whether you're a scientist or woodworker. I think the images, prototypes, that elevate from page into three dimensions allows the viewer to misunderstand your language, its dead simple really.

SSE Academic 2: I mean it is.

DJCAD Technician 2: Its really dead simple.

SSE Academic 2: Exactly that, because one of the things that we find is that the language we use for our research, from the physics side or from the design side can be quite different but actually we are meaning basically the same thing. In some sense it's about trying to be really clear about what you are meaning and sketches and so on that get across you're meaning in a more basic form that isn't relying on you pushing the exact language buttons of a particular discipline is helpful I think, right.

DJCAD Technician 2: & Karen: (noises of agreement/thought)

SSE Academic 2: But again it comes down to the people, because you need people that are wanting to understand the slightly different, nuance of a different discipline.

DJCAD Technician 2: The difficulty of working with our overseas students that don't have good command over design English language, makes a massive barrier to understanding where each other are at in the conversations, very very difficult. I often think I should really be learning Mandarin and some other languages. Sometimes it's: how do we communicate? And so the language of sketch and maquette cuts across that and the use of language can be simplified down to, 'look'. They have the ability to knock something up with materials and make something that communicates a story is essential and brings us right back to how you access the staff efficiently. It's almost like they could do with a little project first: 'This is your sketchbook, it doesn't leave your side ever until you leave college. That's a pencil, don't ever ask anybody for a pencil.' Some things just make life very difficult and take away time from the staff. It's that getting up to speed with the language with a pencil in your pocket so you can always communicate immediately and not have to go get one. Its real primary school stuff at times, its not all high-brow PhD research. Quite a lot of the time its: 'Can I borrow a pencil?' - 'No you can't because I've given them all out!' What on earth am I doing- we are in a university! (Laughs) That's the battle-zone stuff.

SSE Academic 2: Even cutting-edge research, or certainly experimental research: put bluntly is mostly about solving relatively straight forward problems, and only at that last little bit do you start hitting problems that are actually really difficult to solve because they either haven't been solved or there is no solution to them. But most of it, to get to that point is solving, in some sense fairly simple problems but problems that require you to. But most of it, to get to that point is solving, in some sense fairly simple problems, but problems that require you to break them down into clear bits and then solve, solve, solve and just work through the list.

Coming back to your question of how you would split up a project, I think you asked about how you would define between goals...

Karen: I guess who is responsible for what.

SSE Academic 2: From an academic point of view, to get anything done for any length of time, you need some funding: and to get funding you need a clear goal and a reason why that interdisciplinary work add value to it. [REDACTED]

[REDACTED] And then beyond that, that's where the flexibility of 'let's see where this goes' bit comes in. But without that bit we could never have got the funding. It's a difficult one: you have to have a predefined reason for the collaboration and predefined outcome from the collaboration to make it viable in the first place I think.

Ones that I've experienced that haven't worked is where you get somebody that basically needs an expert in a different field and just wants their time for nothing.

So I've had this before where you have people turning round and saying, 'You need to solve this problem for me.' and you sit there and go, 'No I don't' either because you don't get on with them, don't like their approach or find their whole attitude towards it quite difficult to work with, or because they just don't have the concept of the difficulty of what they are asking, and they don't want to know, they just want to say, 'you sort it' and that, 'you do this for me' ...

DJCAD Technician 2: Top-down dictatorial.

SSE Academic 2: That tends to lead to very bad collaborations. It tends to lead to ones where you'll try your work for a while and unless you get very lucky and results come out quickly it will fall apart very quickly.

DJCAD Technician 2: Its ownership of the project isn't it. The difficulties for the person in charge who's lacking people skills ends up spreading woe all over the place, passing the pressures that they have on them onto others who don't own the project. So there's animosity immediately ...

(Audio break up)

... watching some of the big artist collaborations, the likes of [REDACTED] gets involved in massive projects, big budget and teams and teams of people, but they are all brought together with a fish supper and a pint and all at his expense, and the collaboration is always about shared values, not 'this is my project: I need you to help me get to the other end of it.' but how we get there is not me telling you, it's me allowing you to own your piece of it and you do it your way. For me, I've worked in many collaborative projects, not really DJCAD but with the staff that are friends in DJCAD, and that's a rewarding situation to be in, as opposed to employee – employer almost, where it's like: 'you've got your list now get lost.'

Karen: And do you find the relationship between... speaking very generally here... for academics and technicians: do you feel like there's a separation between how these individuals ...

DJCAD Technician 2: Only in personalities

Karen: Because they are both very skilled in different ways and its if there ever is...

DJCAD Technician 2: But they both need each other, The academic sets the brief and the technical staff support and guide. They both need each other; they are both interdependent. But some personalities were born white collar and can't help it. And so there is a dictatorial, that's not the right word is it, autocratic, as opposed to a democratic approach. That's not DJCAD policy, that's just personality policy.

Karen: Have you got anything to add? (asking SSE Academic 2)

SSE Academic 2: Its very much that. I think you need the technicians to support because they have skills that you don't. But I suppose in any...

DJCAD Technician 2: That's often very unfortunate that the academic doesn't have the skills because they are the ones that allegedly are teaching, but in actual fact it's the technicians that are teaching.

SSE Academic 2: Yes, so I'm thinking of something like the mechanical workshop: so if I need a custom part built... I was actually fortunate while I did my PhD we had a fantastic workshop ■■■■■ but also there was a student workshop there where you could go and use a milling machine, lathes and all the rest and make your own bits. And you'd be able to make them so they would work, and it would probably take you about half a day, so you would get a simple mount in half a day, or you could lodge the job with the workshop and they would do it, and it would take about three weeks but it would be utterly beautiful!

But it was great to be able to spend some time to get the understanding of what actually is it that can be done.

(39:28)

Karen: Yes, even just knowing the tools to know what they can do.

SSE Academic 2: Exactly, so it's quite useful to be able to be able to understand what is involved beyond just saying, 'You ought to be able to make this bit, kinda like this drawing. It should be possible do it.' which isn't very helpful. So it's nice to be able to work with the specialist technicians to be able to say, 'You know what I think this is possible: if I were to do it I'd probably go about it this-ish way, but I don't know. You're the one who spends all their time working on these particular types of machines, processes, whatever and I'd like to know'

Karen: I guess its relationships based on respect, or that appreciation for what the other person has to offer.

SSE Academic 2: Well everyone has their own skills and their own unique way of thinking and that kind of thing, and there's always value in that.

DJCAD Technician 2: If everybody feels part of a team then somebody's doing the right thing.

SSE Academic 2: That's it exactly

DJCAD Technician 2: It's not necessarily a formulaic thing but something that grows based on personalities, which is also disappointing to hear, but fundamentally it's a good thing that there isn't a prescription, or prescriptive way of pulling one team together- the next team will be full of different characters and so they may need a slightly different approach. And so its understanding the fundamentals of changing your approach or different approaches to different teams to get similar results or rewards. Some characters need more motivation than other characters, some characters may need to be brought down a little bit just to be calmed down a wee bit because they are too enthusiastic and have forgotten that you're in charge of the project and that it's your baby and they are starting to dominate and dictate.

It's a fun- I like that part of the whole part of working with different groups of first years, third years or whoever and taking a step back from the project and looking at how the project, how the team is working as the manager or oversight of the project, and seeing that 'that's not good of this is good, or that's really good.' and in actual fact it's not about the project anymore, it's now about the project management, which mustn't be forgotten about in a project. It's the thing that drove me to leave my business because I wasn't ready for that: I was only twenty seven or something and I just really wanted to be in the forest with chainsaws and back in the workshop and working, not having meeting with accountants. But that was the same thing, being able to take that seat, step back and say, 'Right how is it? Boys are in the workshop working, accountants counting, they're all doing their'...and I wasn't ready for that, but I am now, so there you go twenty-five years later.

Question 3: Time (42:14)

Karen: Lastly, if we can look at what could be realistic goals for interdisciplinary research. What are the key things you think are important to bring to the table when you are trying to work with a different discipline.

(pause: no response)

Whether that's to do with communication, responsibility or ownership of the project versus the people you are working with and how responsible they are for the elements they are helping with.

(pause)

DJCAD Technician 2: Hmmmm

Karen: And even managing expectations as well

DJCAD Technician 2: That's kinda been answered ... (audio disruption: 10 seconds)

... the reasons for two disciplines or more to come together to research.

SSE Academic 2: So the big idea is that you bring together people from different disciplines, people with different research skills, well not just research skills but different skills, and you make something that's better than the individual parts. If you get it right that can happen.

DJCAD Technician 2: Well there's two different angles to that question really, isn't there because it's an open question. You could have a goal where you realize that you need a scientist, a woodworker and a gardener, you need to bring them together to look at it. The other was is to bring a scientist, a woodworker and a gardener together and see what happens because you have mingled their disciplines and given them a space and environment to make models, and in actual fact they come out with ... but that would be just throwing disciplines together in order to see what would happen ... trying to mix oil and water and come up with an emulsion.

SSE Academic 2: The trick with that is to work out some kind of way to get people talking efficiently about something that gets them thinking about something that they could all solve. It's very difficult situation: you can have these sandpit events where you throw together a whole bunch of different people and say, 'So what's the one thing that the world needs? And how are you going to do it?' And that's quite a difficult environment to get right, to build right, because you need to find people who want to be in that mindset of, 'Let's think about something totally different and see what we can do.' But you end up feeding ideas into that process, so you don't get that 'I wonder what happens if...'

So I know that there are places, the [REDACTED] and that sort of thing, that will do multi-day events where they bring together groups of interdisciplinary researchers or interdisciplinary people and say, 'Let's think about how we make a big impact on health.' for example, 'What can you do? Let's think of one thing you can do to make a difference to health, sustainability or

whatever you want'. But, talking to people that run those kinds of meetings or multi events, they tend to be saying they need to spend quite a bit of time effectively trying to get people into the right mindset to be able to think like that, if that makes sense. So I think that would be a fantastic goal: to be able to have many more of those kinds of events so you can try to have new ideas coming out of it. Maybe the more immediate goal is getting a clear idea of what different people do.

That is something that isn't so obvious: if you are thinking about a problem, 'How do I solve that? Well I don't quite know how. I wonder if somebody can help. Or I wonder if somebody might know how.' And trying to find that, 'I wonder if there's somebody.' is one of the problems that you have, and I think what you tend to do is you tend to go to your own network. You tend to think of, 'Well who do I know who is... or who do I know of, or who do the people I know, know?' and so on, but that is somewhat limiting because it depends on your network: so I'm much more likely to find a scientist than I am an artist by the way it goes. But that's where there's potentially a possibility to build different ways of... so one way would be a more immediate, slightly more easy to find out what peoples' skillsets are and what their interest are: but probably keeping that in quite broad terms. And then more focused, this idea of trying to get people together to, if it's possible to identify some area where you would like people to think in, and say, 'Let's throw a bunch of people together and see what happens.' but that probably is quite difficult to get really good measurable outcomes out of that.

Karen: I think one of the ... there was a session in the summer looking at the Global Goals for Sustainability: and it was quite interesting, that as you say, it was Jon and a few other people from here that were organizing it and it was predominantly design members of staff that came along, and you do sort-of think, how much more varied and diverse could that have been had there been scientists and so on there. Because when you are talking about global goals, at the end of the day you need people from all sorts of disciplines to try and tackle those sorts of issues. And is there something, even if we are just talking about within the university, how can you get more conversations between all the different skills, and if you were to set up networking events, what would engage people to actually attend those as well, because I do think people like to be in their comfort zones perhaps.

DJCAD Technician 2: Yeah, but after they have been out of their comfort zone for a while they are okay, but they have to be encouraged into the environment in the first place. Do you have much knowledge of the Global Jams?

Karen: Eh, I've only been starting to learn about them this year.

DJCAD Technician 2: Well [REDACTED]

running one global service jam every year and Dundee was one of the best attended. It was post-it note madness, twenty-four hour binge. But it's completely linked up with the whole of the planet: using social media or whatever tools, digital tools. It's quite a good way of: you have to create an event and market it and propose that there are outcomes that are not solid but there are over 'here', and we are going to try to bring as many people into it to try to work our way over to what might be a goal. But it might be another outcome, because you have brought people in from so many different disciplines, and the lead either has to lead or ...

But what better place for you to do something like you are doing: you've got so many disciplines all within one town center from the university. I can't imagine trying to have as much diversity in any business, even in a research business, it would have to be incredibly well funded to have the sort of things here on your doorstep literally underneath one roof.

(51:15)

SSE Academic 2: The big question mark in some sense about trying to engage people in interdisciplinary research, is trying to engage those that don't: because there are a portion of people who will engage with interdisciplinary research, and interdisciplinary thinking. I always worry that that's probably missing a trick because they are people who tend to think in a particular way, they are people who tend to but what happens about the people who spend all of their life thinking about how to make a more efficient suspension coil in a car, and how do you get them to add their knowledge into it? How do you get the person spending their whole life thinking about any particular subject? The one's that don't naturally want to say, 'Hey, let's give it a try.' How do you get those involves because in a way that's the big locked-in potential that at the minute is never unlocked, because you set up an event saying, 'Hey let's do this interdisciplinary meet up and we'll think up some big ideas.' and you'll get, if I'm being very stereotypical, you'll get a very reasonable turn out from designers and creatives, you'll get some perhaps from science and engineering, one or two from life sciences, and that kind of thing. But you sit there and think, 'But what about the other people, how do you actually engage with them because I think that we can all benefit from exposure to more stuff, to different ways of thinking and so on. Even if nothing concrete comes out of a collaboration, just to have spent some time being exposed to how other people think about different topics can be really useful, it can help...

DJCAD Technician 2: You have headings for different people, because some people won't be broken down, they don't want to be, they are single furrowers looking to absorb as much information personally for themselves as possible, working into their project for their profit:

bye bye. Y'know literally single furrowers. I teach the designers from first year that your creativity in a team is much more powerful than creativity on your own, because you've got eight heads in there, you've got eight heads in the team and less responsibility: there's no I in team. So you can relax and take shared ownership of the project and not feel that all the weight is on your shoulders, it's on all of your shoulders, but you're going to get people who will just sit there with their arms folded and say, 'I have nothing to do with this, even though I'm here.'

SSE Academic 2: But even those people, the people who sit there, in some sense that's the bit that I wonder about the most with interdisciplinary research type projects, because the people who just sit there with their arms crossed going, 'I don't know, I don't know why I'm here, what am I doing?' its very unmeasurable as to whether it actually has any impact on them in the longer term. The big question in some sense is are people y'know, if you are regularly exposing people to a broader range of issues and approaches to solving, a broader range of ways of thinking about things... its likely to feed into their approach to things even if it isn't in a measurable way. There would be great benefit to that, but quite how we do it is difficult, right?

DJCAD Technician 2: Well its fascinating seeing someone from an entirely different background with absolutely no knowledge come up with a solution, because they are just seeing it from their own gardeners eyes, and they'd never imagine that they could be. And that's really good for those individuals as well to bolster their confidence in dealing with projects which they believe are out with their competency, but in actual fact it's a solution that we are looking for: there's the problem. So why isn't everyone empowered: we can all be empowered to do that, but its whether you choose to be a part of it, is the biggest mind block, is that you want to be a single furrower or you don't. And you'll never get past that until you, the individual gets past that or chooses to get to look back into that from out with, y'know. So all my design students who I worked with mostly I would encourage them right from the start (**to work in teams**), they will all be working ultimately in a design office somewhere and it will all be groups: you're not doing doorways and fire breaks or whatever on your own for an office block of fourteen floors. It's going to be big teams of people working on the right flow of people or the different uses of office and how can we... its always going to be groupwork around a big table throwing stuff into the center and mind mapping. I can't see a company leaving that to one person because in actual fact it's a lot of responsibility to have that on your... you might have a team leader who will be looking for as much input as possible in order to dig out what all the problems are. One person just won't see what all of the problems are, but two people will see more.

Karen: It's interesting what you've touched on: people attitudes towards interdisciplinary research in the sense that there was a lecture that I attended a few weeks ago and it was by an artist [REDACTED] and they basically engage with scientists and make work

inspired by their scientific research and they were talking about the social benefits that that can have as well in the sense that they do have some scientists who are really interested in why they have come to NASA or somewhere for example, and they are intrigued and completely open to that collaboration, and then as you say there's these other people that shut the door on the whole idea of, 'You don't help me in any way, therefore I'm not interested.' But then they [REDACTED] were saying by the end of the projects, those were the people who were like, 'Oh you haven't had an interview with me yet.' and it was almost like they felt left out of that social ...

DJCAD Technician 2: But you can see that they are egotistical and then in actual fact now feels left out: doesn't want to contribute, then realizes they are being ignored.

Karen: Yes, yup.

DJCAD Technician 2: That's pathetic really isn't it. I don't mean that, but it's personalities, it's absolutely personalities. The best team will be the one that respects and is made up of strong individuals, but utterly respect other positions. Prepared to put their own thing in but also prepared to take that's, y'know.

SSE Academic 2: One of the things I think interdisciplinary research, interdisciplinary thinking, one way that that could be promoted is to focus on it as very much as a, 'y'know this will be fun.' kind of way of thinking. Rather than saying, we're going to bring a bunch of people together from different disciplines to think about one problem on this, and make it all about 'you've gotta think about things in a different way'.

DJCAD Technician 2: Pressure pressure

SSE Academic 2: If it was just like, 'We get a bunch of people together for fun and we're gonna have to think about some stuff for fun and that's the whole point of it: to have a bit of fun for a while, see if anything that people want to carry on because they are enjoying it. Because I think that's probably the thing that is the best motivator for any of us, it's not because we feel we have to, it's not because we are being forced to, it's not because our bosses are telling us to, it's because we are enjoying it, because we are actually getting something out of it and we are

enjoying it. And that getting something out of it is, I suspect its rarely a financial or immediate impact kind of thing, it's much more likely to be a more fun, because it's nice to interact with ...

DJCAD Technician 2: Do you want to be involved. The environment that's be set up for the collaboration: is it fun? I really enjoyed that or I didn't enjoy that: its easy. Having a laugh is the best way to get everybody relaxed because you've brought together ten people, you've got a problem and you are looking for solutions: you only really need one or two solutions and it might take five minutes, but it might take an hour to create the environment for that one comment that nobody knew was coming, came. Because they were relaxed, it was a good environment to work in, they wanted to be there and actually I did a bit of research last night and dede de liddle le y'know. I never thought of looking up... I hadn't realized that silver was a sort of biproduct of gold industry, who knew. And so I did all of that education because I wanted to and there's those who don't want to and aren't interested and aren't even going to look, and its those that, they need to not be in your team, and just get the right team around you. There's one of each everywhere.

SSE Academic 2: Do you not think in some sense that in an ideal world, wouldn't it be great to get the people who at the minute don't want to think in an interdisciplinary way, wouldn't it be great to just sometimes say, 'Hey let's think differently just for a little bit, a couple of hours.'

DJCAD Technician 2: But they might not like being spoken to like that.

SSE Academic 2: They probably won't but uh.

DJCAD Technician 2: I was at a, yeah I guess it was interdisciplinary, I went on a course to up my [REDACTED] professionalism. So it was a top course with a top sculptor in this country who does all sorts of crazy [REDACTED] door fronts and stuff like that with amazing, just incredible flowing [REDACTED] So eight people came on the course: weekend long thousand pound course, professional, not for the beginner at all. And there's two people from Bolivia have come on this course, there's another one from Australia who has come on this course and then a bunch of Scots and Englishmen: ten people. And it was fascinating: we were there for four days and I was working with a hairdresser who hadn't any experience: I don't know how he managed to get on the course, but he was a hairdresser, fifty year old man running a business, and he was great fun, in actual fact I hadn't realized - I'm actually about to start arguing against my argument...no, no I'm not- he was quiet to begin with but he came round to: I was sharing a bed and breakfast with him and before long it was, and so we were off and blah de blah blather

and we made a [REDACTED] together and it was hopelessly clumsy but it was great fun. But there were other individuals on that course who, even after four days, couldn't: they didn't mingle they didn't try to pick up or drop off information about anything, they just kept quiet and just aren't a team player. I think some people just won't.

Karen: It's quite interesting there as well there everyone has invested financially into that scenario as well: you would think that everyone would be invested into wanting to make that work. It's strange how the social impact is still crucial.

SSE Academic 2: The problem is you don't really know if those people are gaining nothing out of it or not. They are actually picking up quite a lot. So you do get people who are for whatever reason socially pretty awful at interacting.

DJCAD Technician 2: To sum it up: you could have the world's top technicians, scientists, whatever's a way of grading your top scientist without a single thing to do with social skills, just based purely on science and papers and all that and put them together and you can pick five people who have got social skills as a bigger thing for them than it is how many science papers they have published, and give them both a solvable problem, and watch like the primary school, you know: filming the kids once the teachers left the room set up and see how that goes!

Karen: Okay-dokay, has anyone got anything they want to say before...

DJCAD Technician 2: lublalula...

(laughter)

Karen: Well thank you very much for both of your inputs ...

DJCAD Technician 2: Hopefully it's of some use to you.

End of recording

Time 1:06:25

