

Is Recording Engineering?

Focus group discussion with final year *Tonmeister* students
University of Surrey, 15th May 2012
Transcription

About twenty five people were present at this event: Jez Wells (University of York) who led the discussion, a sound recording tutor/studio support engineer (listed below as 'SM' – staff member), and final year students of the *Tonmeister* course in Music and Sound Recording. Students are listed anonymously as s1, s2 etc. As this is a transcription from an audio recording of the event it has not been possible to identify those who spoke more than once with the same anonymous label (hence there are more labels than people who were present). However, it has sometimes been possible to identify one speaker with more than one comment and in these cases the same label is used.

Jez gave an introduction to the project and then began the discussion.

Jez: Does anyone have an opinion on whether recording is an engineering discipline.

s1: I think the science behind recording, things like how microphones work and room acoustics, electronics, all the things that we learnt in our first year: the theoretical side of things that is maybe common to a lot of engineering disciplines. They form a foundation which we use when we're actually doing the practical side of recording. I think it's something which, I don't know about anyone else in this room but in my first year I was maybe more eager to get straight into recording itself, but I found that, in the second year, when we were actually able to get hands on with the microphones and also get in the control room as well, having that knowledge in the back of my head did help; not all the time but in some situations, especially situations where I felt more out of my comfort zone. So, I think the knowledge behind it could be considered engineering but perhaps the actual of recording is more of a creative process than a scientific process.

Jez: Thank you, does anyone agree or disagree with that?

s2: I do agree with most of that but for me, my own view is that when you're recording, at least professionally, and you've got a producer and an engineer the roles are still split up with producer doing all of the creative things and the engineer still has the logical mind, like following the signal path. I guess it's not engineering in the same way that engineers use the term, but it's still that logical framework.

Jez: that's interesting, the distinction between producer and engineer usually crops up but it arrives at different points in the discussion. So you feel that there is a clear distinction between the producer and the engineer?

s2: Yes, less so when there's a budget but ideally there is [a clear distinction].

Jez: Can anyone characterise what they think an engineer does as opposed to what a producer does?

s3: I think that you're saying is quite important at the moment, especially in terms of job security for engineers. At the BBC they're merging the role of producer and engineer into one role called a 'content assistant' (CA), and they're basically making a lot of engineers redundant. I think they've cut the department up in Scotland by 50% or something and it's basically because they're convinced that what the producers can do is basically what the engineers were doing so they don't see the necessity of having a separate recording engineer. They just think they should have a producer, or now not even a producer, but a CA who does all these things. So a lot of jobs get lost if you don't make that distinction between what an engineer is and what a producer is. In the sense of that environment the producer is someone who controls the show and the engineer is someone who facilitates that and is a part of the process. It is when things go wrong, when things break or a desk shuts down that they suddenly hire in a freelancer at double the price. So I think it is important to have that distinction.

Jez: At the moment I'm getting the impression from the people that have spoken that engineering does happen in the studio when recordings are being made but also, and correct me if I've got this paraphrasing wrong, the engineering is in the science underlying what's being done but not necessarily in the day-to-day or minute-to-minute decisions which are being made during the recording process.

s1: Personally, yes but what that's reminded of is that when things do go wrong in the studio, especially if you've got clients in, if you do have that knowledge of the thing that you might tackle first, try out first to fix, that can only stem from having some kind of knowledge about what's going on in the room, or to do with the equipment.

Jez: It's the ability to fix things because you understand them?

s1: Well, yes in terms of a commercial side of recording where you've got a certain amount of time to do something; I think that knowledge to do it quickly and figure out how to solve problems.

Jez: That's interesting, the ability to arrive at something faster than someone else would be able to?

s1: Potentially, yes.

Jez: I'm interested in that because there's a saying in engineering, which I'll update to modern money: an engineer is someone who can do for ten pence what anyone can do for a quid. I've turned that around in the past to think of that as: an engineer is

someone either who can do something well that anyone can do badly or is someone who can get the job done much faster than someone else. Would anyone agree with any of those? OK, I can see a couple of nodding heads at the back. OK, those people who are here in the room: which of you see yourselves, when you ultimately arrive at where you want to be in your career, when you arrive at the pinnacle of your career no matter how far in the future you think that may be, how many of you see that point of arrival as being in the role of a recording engineer? **[Four people put their hands up]** What about production? **[Six people put their hands up]** What about people who are not going to do anything directly involving being in a recording studio? That might be people who are doing what might be considered 'audio engineering' which is designing equipment or that kind of thing **[one or two hands go up]**. Finally, anyone else who's going to be doing anything else **[a few hands go up]**. Those people who are going to be doing 'anything else' what do you think you might go into, and do you think the science and engineering which you will have done on this course might have informed that in anyway?

s4: Well I'm probably going to go into post-production for film and television so it's slightly different from what you're talking about, which is very much studio-based recording.

Jez: yes, but we can broaden the discussion out, we can extend it to live sound as well.

s4: From my experience not many people in that industry call themselves engineers; even the recordists for ADR or foley, they'll call themselves ADR mixers or foley mixers, rather than engineers and they have separate engineering departments to fix the desk if it goes wrong and they can't figure it out for themselves.

Jez: So in that context engineering is very separate.

s4: From my experience, I don't have a vast amount of experience, but they have separate engineering departments. The mixers will try and fix problems themselves but if they come to a point where they don't think they have the tools to do it then they'll collaborate with the engineering department and get the problem fixed.

Jez: Is that a historical thing to do you think, or is that just the way that it is?

s4: From my experience, but otherwise I couldn't really comment.

Jez: Is there anyone else who's not going to be doing 'audio engineering' or 'sound engineering' who wants to say whether they think that engineering will play any part in what they're doing?

s5: I'm hoping to go into musical direction for musicals and, for that, the engineering is knowing what goes on with live sound and how things are mic'ed up will hopefully be

positive. Knowing that if something goes wrong I'll be able to get it working again, but it's directly engineering myself.

s6: Even if you just want to be a session musician, if you're aware of what an engineer might do, then that understanding will help.

Jez: Has anyone got a definition, either one they had before they came here and one that they've developed during the start of this conversation, of what an engineer is? There are lots of engineering departments at this university. What is it that unites or combines those particular departments? Does anyone have an idea of what an engineer is?

s7: I don't know if it would define engineer but from an outsiders' point of view who wouldn't call themselves any sort of engineer, I think there'd be the assumption that there would be maths and physics involved or just academic study in general. My experience on placement last year was that you don't need any academic knowledge to make a good recording, just trial and error is good enough. A producer/engineer I worked with just started out recording brass bands with no technical or musical knowledge, he just started doing it and got good over thirty years or however long it was.

Jez: A follow up to that: could the person that arrived at that point any other way? This sounds like a person who is a very good 'sound recordist': a person who has arrived at a position where they are good at making sound recordings, and arrived purely via 'experience'. Could they have got there any other way? Would they have wanted to get there any other way? Do you think you can get there any other way?

s7: I think the most logical other route to get where he was, would be to copy someone else and then develop his own ideas rather than doing it from scratch; because they're maybe less of a creative side to engineering, or engineering as opposed to producing. Maybe trial and error just on your own is the best.

s8: I agree with what he just said. There isn't really an alternative route to becoming good at making recordings. I think there's a distinction between the science of engineering and the experience required through trial and error of actually making recordings and finding your own way of making things sound as you expect them to sound. In terms of defining an engineer, I think that the term engineer implies a link between science and practice in that there's obviously scientific knowledge: people research and have done for thousands of years and there are people that 'do' and an engineer is someone who bridges that gap, who takes that knowledge and applies it. I think there's a distinction between that and someone who can make a good recording.

s9: I think perhaps there's a title missing in our process of recording. If we say that we have our producer, who's dealing with the artistic side and then we have our engineer.

There is a hole perhaps where a 'technician' could be: someone who has good mic technique maybe, or knows exactly what to do in order to get a good sound but doesn't understand the 'nuts and bolts' of the devices that they're using. So perhaps the role of the technician and engineer is kind of merged in to us almost and perhaps that's why we have this ambiguity as to whether the engineering is inherent in the practice or whether it's something that's just been kind of annexed as the two roles merged.

Jez: So the engineering was necessary in the development of the kind of technologies and methods that people use for recording, but now that they are developed and established and there's a wide variety of technology tools available which are user-friendly then the engineering is no longer necessary. Is that a fair summary?

s9: I don't think I'd quite go that far. I see it as we've moved past the stage of having men in white lab coats in a recording studio dealing with large amounts of mechanical machines, who are clearly engineers. I wouldn't say that there is no need for engineering, that's not quite what I'm saying. What I'm saying is you can be a recording technician and make good recordings without having any engineering skill. The two things are interlinked.

Jez: Yes, I think that in other spheres, in fact some people do relate this to engineering in talking about the difference between a craftsperson and an engineer. Does anyone have an opinion on that, on the word 'craft' and whether that's appropriate to the production of recordings? Something that has cropped up a couple of times is the word 'creativity' as being something that happens sometimes but not at others. What is creativity?

s10: I think that creativity is completely void of engineering, it's like a Venn diagram where there's no crossover. As regards the production thing, I don't think there'll ever be a time when you don't need a producer and an engineer; because it's really hard to be creative and make a good recording if you're solely focussed on the engineering things, it can be totally detrimental in fact.

Jez: Implicit in what some people have said there's this idea that there is something creative happening inside the studio that's not necessarily to do with the engineering. I think what you are saying is that there may be creativity but it's separate from engineering and there's no intersection between the two and if you're trying to do one then you get distracted from doing the other.

s10: Yes, if you're trying to do something creative there's no way that you're going to be able to do anything logical and if you're trying to do something logical that's going to stop you being able to get a good sound.

s1: Following on from what he was saying, I entirely agree with that. There might be the way that we're taught, and this is just a hypothetical example, if we're recording an

upright piano, let's say we know how we should mic' it up for it to sound a certain way but for the band we've got in they want a particular tone: we need to break the rules of what we know to maybe get a sound which is not particularly nice if you were to listen to it by itself but when you merge it all together it creates what the band are after. In that way you might be putting the engineering side of things to rest and concentrating more on creating music.

Jez: Just as an aside to that: how do you break the rules? What sort of processes do you need to go through in order to break the rules? How do you get the new sound that the band wants?

s1: I guess I don't know [laughter]

Jez: Someone else was talking about pure experimentation and that might be one way of getting there.

s1: But again, having the knowledge of knowing how something will sound if you do it a certain way, and putting that aside to try something else, I think it's only if you have that knowledge in the first place as well that you can even try and be that experimental.

Jez: There's a saying, and I hope I get this the right way around, "rules are there for the guidance of the wise and for the obedience of fools", meaning that rules are great but you need to know when to break them and you shouldn't slavishly stick to them. Is that along the lines of what you're saying?

s1: Yeah.

s7: Carrying on from what was said earlier, I think an engineer is someone who uses science and maths to solve real world problems and, in that case, you can see something like that (needing to get a certain sound) or work with a certain set-up and record something: if you used your scientific knowledge in order to solve those problems and say "oh, I use a microphone with this directivity in order to get this result" and you're using the science to solve it, then you can say it's engineering. However, there'll be other people who just say "well, I've done this before and this works, I don't know why but I know that if I stick this microphone here I'll get this sound" and that's not so much engineering. So it may be a case of eventually getting the same result but how they got there determines whether or not it's engineering.

Jez: That's quite a classic definition of what an engineer is: someone who uses systematically accumulate, scientific knowledge and skills in numeracy to solve problems and you were giving an example of where that might actually occur in the studio. Would people agree with that or would you say "no, I don't think that is engineering?". That seems to mean and, again correct me if this isn't what you mean, that we can have engineering that happens in the studio but there can also be exactly

the same act but that doesn't embody engineering. In fact, we could have the same recording: one has engineering involved, and the other doesn't.

s7: yes.

Jez: Would anyone disagree with that?No.

s11: On this separation between engineering and creativity: I would disagree with that because I think that a lot of the great engineering solutions that have come up over however many years: you could only really have a creative mind in order to come up with that solution because a lot of it is thinking away from what has been in the past. So, a lot of engineering solutions are in themselves quite creative. I think if you are trying things, if you are experimenting then that's engineering because it's trying to think 'outside the box'. I think there is some overlap in the Venn diagram.

s10: Actually, I agree with what he's saying, he's enlightened me.

Staff member: I've seen both examples of this. One engineer wants more separation between his instruments so he gets a big studio and puts them all in different corners of the room and another one is recording a big band and he puts the trumpets in front of the saxophones and, to me, he's thinking about what the microphones do and how the musicians are going to play with each other and how they're going to hear each other and the first person has some idea about it, but it's not going to work. I think that having that basis of how things work is going to inform those choices.

Jez: It's almost as if the first person has got in their mind a picture in their mind of an instrument but there's no player attached to it.

SM: we'll just get sounds as far away from each other as possible and then have a lot of separation, without thinking about whether it's going to sound like the other end of a tube train platform.

Jez: Ok, so that's the first part of the discussion done (I want to do this in three parts) that covers what goes on in the studio and the nature of the different roles in the studio; we talked about what the producer does and what the engineer does and whether or not that's creative, and maybe there are some in-between roles, such as technician, and we've also talked about how we might get to the result that we want: one is by experimentation, one is by using prior knowledge in order to move quickly to a particular solution but the drawback of that is that you might be close to other solutions that you haven't yet experienced because you haven't allowed yourself to try them out. Is there anything that anyone wants to add to that?

s12: I think that the advancements in technology are actually diminishing the requirements for creativity and logic in the studio. So, for example, in our previous

seminar we heard about things such as automatic mixing software. You can kind of get to that result, in a way that you couldn't before, with just the press of a button. For example, you're using a Dictaphone to record this conversation right now and you've just done it with the press of a button. I'm sure it will only be a matter of time before you can set up mics just as you have done here and the mic will automatically adjust itself, polar pattern and frequency response, according to the instrument that you're recording or the distance you are from the instrument. When you're asking the question "is recording engineering?" by the time you've finished reading the question something has changed in the industry of recording, something has become easier. So I think that when you're doing this kind of research you have to take into account that everything is evolving quite quickly [45.00]

Jez: Yes, so we can build a picture of what's happening in 2012 but it may well be out of date very soon, and that effect is probably increasing in speed. The other aspect of these [cheap, portable digital recorders being used to record the conversation] is that anyone can buy one. I'm not sure exactly how much they are but possibly between £150 and £200 each and, certainly in terms of the recorded quality, arguably better than what you could have achieved with many hundreds or a few thousands of pounds of equipment thirty years ago; and, yes, you're absolutely right: you turn it on, you press a button so things have got easier. Has anything got harder?

s13: Making money! **[laughter]**

SM: I wonder whether that fact that it's getting easier, do you think it's separating people from the engineering? Slightly off the topic of recording, but I heard two people in the past week say that when a [well-known manufacturer] released [a new version of a well-known video editing package] all the video professionals and editors that were using it all of a sudden said we can't use this anymore, it's just got a button saying 'make video better' that you press and it probably works. It's just 'point and press' and the manufacturer said, well it's only a millionth of a percent of our user base who are using this professionally, we don't care, we'll go for the home user. But [the pro users] can't get to the workings of that software anymore to make those unusual decisions that they might want to make.

Jez: So the tools aren't configurable. Whereas previously you have had to....

SM: ...build your own studio with leads....

Jez: ...now it's just pre-packaged.

SM: with [one particular well-known audio software product] you click on a picture of a guitar or a vocalist and it puts some EQ and stuff on it already for you and it makes everything sound the same.

Jez: Going back to the mention of 'automatic mixing' to what extent does that work? To what extent does that solve a problem in sound recording? Can we automatically apply an EQ to something and it will do the trick? Do you feel threatened by it? Does it threaten your ability to make money?

s14: I don't think it really threatens the recording industry much at all because the kinds of people that would use it are more musicians who want to look like they're an engineer; so there will still be the role of an engineer or whatever we want to call it elsewhere down the line.

Jez: It moves to different places?

s14: Yeah, like the link that has been made with photography. I think most wouldn't say they're a photographer because they're using a digital camera that does loads of cool stuff, it doesn't threaten the photography industry.

Jez: Would anyone say that actually we have more possibilities and more tools available, more ways in which control can be exercised? The situation you described, is where control has been taken away from people, it's all packaged up, it's all sealed over, you just press this button which makes it look better or makes it sound better. Are there any situations you can think of where you have more control.

s15: Well I think it makes any professional need to 'up their game'. If the average consumer can click one button and make a decent sounding mix then the professionals, in order to keep their jobs, are going to have to be able to adapt and use those tools to reach a certain level and then go some more to make it stand out. There'll always be competition and people will always go for the better product so if everyone's making really good recordings, cheaply and easily then no one will make any money if they make an alright sounding recording. The professional's are going to need to use the tools that are available but then do something extra.

Jez: There has to be some kind of differential?

s15: Yes.

s16: I disagree on this whole automatic mixing thing. I happened to see the presentation that was made at the AES [convention]. I think it does threaten the recording industry; not necessarily because it allows more people to do more things better but it gives this impression to 'Joe Public' that they can do a decent job and they don't need to employ a professional engineer. That has its arguments for and against obviously but, particularly for this automatic mixer they were discussing the potential of analysing particular engineer's techniques in mixing, so that you could apply 'Steve Albini' to do the drums and whoever else to do your guitars and, by analysing the techniques that they used in their mixing from the dry stems you could take the individualism of someone's mix and

apply it. It wasn't just a black box that always does the same thing. There is a potential for it to take individualism away and therefore if it can be individualised almost to infinity then people who are still doing the job as individuals by the end of it they're either going to have to be godly in their mixing skills or have to start doing things which don't make sense in order to still be individual.

s17: I just wanted to say that a lot of the presets that are available, say "I'll apply this to add sparkle, brightness and stuff". It doesn't take into account the sound that you have there. You might have a Steve Albini-style engineering plug-in but it's still not going to be him listening to it and putting the specific touches that would be missed from him listening to and him applying what he thinks it needs. It's still just a general application, it still hasn't got the personal thing that an engineer can say, "oh, it needs a notch here and there", it's still just general thing that.

Jez: It's of limited intelligence. s16 said that in order to have this edge, which I think you are talking about there's a danger of being pushed into absurdity: there's nowhere left to go apart from doing completely bizarre and confusing things. Has recording 'arrived' then? Is there anywhere left for recording to go? We can talk about both classical and pop recording together or separately, but has it arrived? Is it the case, as Ray Dolby said a few years ago, that we can relax because all of the major problems in sound recording and audio engineering have been solved? Is there an end point that we'll reach or is sound recording and what we try and do with sound recording going to change?

s18: I think that will depend on technological capabilities as well. When we have the technology to have three dimensional sound in cinemas then engineers will have something extra to add to the industry that amateur programs or software cannot do. I agree with s15's point, so as long as we manage to add something extra, to raise the expectation of the audience then we have something to give them that is worthwhile.

Jez: So as long as there's constant progress, there's somewhere for the cutting edge – if you like – as mediated by people such as yourselves, to go to as well.

s4: Just carrying on from what ? said, when stereo came about you had people like the Beatles pissing about with it and putting everything all over the place; and it's the same with new technology. If we do get to a 'new technology' then there will be one person or a group of people who experiment until we arrive at the 'norm' as it were and it will probably just go round in a circle like that, every time something new comes out.

Jez: There will be this constant cycle going on...

s4:...hopefully

Jez:...of new stuff happening, people getting carried away with it, people refining it, becoming very sensitive and talented at dealing with that and then something new coming out.

s4: Yes, that's the only way I can see it going; either that are going back to....

s19: ...mono...

s4: [laughs] Yes, back to mono, back to what the Beatles were doing and try and shake it up a bit more, find new techniques and new styles.

Jez: Unlike any of the focus group discussions to date, and it's really interesting the way that each different discussion goes, we've ended up talking about automatic mixing tools which I think is very interesting because, in one way, it goes to the very heart of what happens in the studio, and the kind of human beings (or not-human beings) can mediate it. There are a number of people, music researchers, who are interested in coming up with the kind of artificial intelligence which can write music; people have been trying to do this for thirty or forty years. Who's going to get there first? Are we going to come up with satisfactory mixing tools which are completely automated or are we going to get to computer programs that can write pieces of music which are satisfying? Are either of those going to happen, and if both of them happen, which will get there first? **[long pause with no response]** OK, put your hands up if you think that both of them will happen? About a third of the people here have their hand up. Those people who think that one will and one won't happen, would you like to comment on which way round you think it will be?

s20: I think it's got to be mixing that becomes automated rather than music making. I don't know why, it seems obvious to me.

Jez: Is that because it's a simpler task?

s20: It's because it's more based on scientific principles. There are measurable things: you can meter how loud something is peaking, know how much it should be peaking and compress it. Whereas in music I think it would be a much more complex set of algorithms that will end being able to say "OK, we've gone to this chord, which chord should we go to next in order to create a certain emotion".

Jez: Because it's a more complex problem that you're trying to solve it will take longer to get there, in fact we won't get there?

s20: I don't think so, no, because it's got to do something different every time. Music can't just be the same every time because once someone's heard it, they've heard it and they're not going to buy it twice.

s10: I think that completely forgets about the creative side of mixing. I think it would be just as easy to make a satisfactory pop song as it would be to make a satisfactory mix; but people don't buy satisfactory songs or mixes. A computer wouldn't come up with "let's distort this vocal a tiny bit because that sounds quite cool" or "we accidentally left one side of the patch bay out, but that's cool". You can make a cadence pretty easily and put the bass around the kick drum pretty easily but that's not what makes a million pound record. So I think maybe both of them will happen but I guess with artificial intelligence, if you can make a computer creative then you can do it, but 'creative' is what makes a thing 'good'.

Jez: Another way off asking the questions is: would you want to listen to music that had been automatically mixed? Would you want to listen to music which had been automatically composed?

s4: Depends how good it was.

Jez: That's the cheating answer! [laughs] [1.04.14]

s21: Composition and song writing can be done in quite a scientific way: chord progressions and the structure of a pop song. A lot of stuff does sound the same, there's common chord structures which have been replicated through a number of number one hits. I think it is possible for a computer program to quite easily write a pop song. It's the creativity that makes it interesting, and the production. I don't think it's difficult to make a winning pop song, it's just the production and stuff. I'm not entirely sure where I'm going with this [laughs]

Jez: It seems that there is something in the music that you're talking about which cannot be automated or requires human input, if I have got what you are saying correct.

SM: I've got a couple of points. One is automated music making, the other pigeon in the room at this point is the listener. People who are listening to music, they're part of the experience aren't they? They're not going to want to listen to something that a computer's written ever, I don't think. If they know a computer's done it they'd rather, well, they're after poets aren't they and proper songs etc. or something you can dance to. It's a race to mediocrity isn't it with both of those things [automatic music and mixing]. You're going to get bland samey things written to a formula, but I think a key to both of those things is, and especially with mixing, is analytical skills on machine listening which is what is happening at Queen Mary [University] and what we're doing with psychoacoustics. Whether you can meter 'warmth' or for a machine to be able to give those qualities of how a mix sounds in the same way that we can; and if you can do that, if you press the button that says "I want sparkle please", if the thing's already sparkly it can analyse that and say "well that's already sparkly, I'm actually going to take a bit of sparkle away" and that will produce what is being asked for with the sparkly button. So it's the listening skills and it's something I'm always banging on about and I

did bang on about it at this morning's discussion as well, but no-one's mentioned it here yet, is how vital that is to the whole process.

Jez: So the ability to adapt to what's already there...

SM: Yes, to listen.

Jez: To not just automatically say "that track's called 'guitar', so I'll apply this EQ" but to actually listen to it and go "OK, the guitar is quite bright but it's lacking in the mids, so I'll bring the mids up" or something along those lines.

SM: It's automatic listening rather than automatic mixing. The mixing's easy after that, once you've analysed what's there already.

s11: I think the mistake all people make as well is thinking that all this is going to happen at some definite point in the future when it's already happening and has been happening for the past five or ten years: with mixing, it's been taken over by a lot of automated processes, even from top down, so mastering now, a few years ago I'd spend a lot of money sending stuff to mastering studios and now I never do that because I have Izotope which is this one plugin which does the whole multi-band compression, limiting, stereo widening, all that stuff. It definitely doesn't sound as good but people always go for what's expedient not what's the best quality thing, for the same reason that people now go to Tesco's to buy all of their meat instead of going to a top-quality butcher, and the way that butchers can survive is by providing the best possible service to people. The stuff that rich people would buy, or people would buy on a special occasion. The same with big studios in London, they're now concentrating on film because they're the only people who can do it, whereas everyone else will do everything they possibly can at home or at cheaper studios and they'll only do the very top-quality things and the things that they can only do at Abbey Road, at Abbey Road.

Jez: So it's a costly, 'deluxe', option: and engineer is someone who will do for a quid what anyone else for 10 pence.

s11: Yes, Tesco's finest! **[laughter]** But, yes, I think that's what engineering will become. People will become very specialised and do the top-quality, most expensive things and then the rest will be done, like it already is being done, by people with Izotope sitting in a flat like Skream, who is one of the most successful producers of the recent age, sitting in a flat playing with Fruity Loops which is free. I think we need to become more specialised and more advanced at what we do to the point that we draw in people who want to do something that's better than everything else.

Jez: Yes, that all makes sense. Your mention of Izotope reminds me of when all of the TC Electronics stuff came out [e.g. Finalizer] about 10-15 years ago. All of a sudden there

was almost a “make it sound better” processor: something that you could just put your mixes through.

SM: and now everybody hates it. Why does that happen? Time and time again.

Jez: That’s an interesting point which says that if you automate something, fashions will move on and someone will move ahead by doing something different to what the automatic tool can do.

Jez: Thanks. OK, moving on to the second question: what are the skills that you need in order to be able to succeed, to do what you want to do? How do you go about getting them? If someone who was in years 12 or 13 came to you and said “right, I want to be a recording engineer” or “I want to be a producer”, “I want to be a sound recordist”, “give me some advice, tell me what I should do” what would your advice be to them? If you were their training manager – if you go to the gym you have someone who sorts out a routine for you to get you in to shape, what would you tell people in order to get them in to shape as people who do sound recording?

s4: Not sleep? **[laughter]** Not sleeping and determination are probably the key things.

s7: I was just going to say that I think, even having a knowledge about recording is obviously very, very important, in terms of the actual session itself I think that people skills come more to the forefront than anything else. At the end of the day you’re dealing with people as well as dealing with actual recording. In order to get a good recording you need good musicians, and to get good musicians you need to keep them happy, and to keep them happy you need to be happy etc.

Jez: No sleep, lots of determination and constantly smiling.

s4: Following on from that, [a well-known industry figure] was saying to me that he found that when he had children he found it very easy to deal with clients a lot more, because he would be like “do you want this, or do you want this?”, not dealing with them in a childish way but problem solving about how to get answers out of people because sometimes clients think they want something and really it wasn’t quite what they were after.

Jez: That’s a different approach to conflict resolution I suppose, because sometimes if you’re having a debate with a peer then you tend to want to win that debate and to impose your will on them but actually once you’re dealing with children you’re probably thinking “do you know what? I want an easy life what I do I need to do in order to bring this issue to a close?”

s4: Yes, and he’s saying that he has to be, as a mixer, so many different people. You have to be client liaison, you have to be a mixer, you have to be many different people. So you *have* to have people skills.

Jez: Is that something that is associated typically with engineering. I can see a couple of people nodding their heads.

s22: It's probably not associated with, but it's lying underneath.

s7: It can give you the confidence to not worry about those things so that you can concentrate on being yourself.

s6: I think important advice would be: if there's something that you particularly want to do, like recording you should go and get the best recording equipment that you can afford and just be a recordist and find bands that want to record songs, and record those songs and start calling yourself a recording, er, technician. If you're passionate about it then you will learn how to make your recordings better, you'll save up for better gear and you'll get better at what you do, you'll learn the skills, you'll the theory and you'll become a better engineer. Better at whatever it is that you want to do, whether its making videos or making recordings or making anything; and education can help to speed up that process but I think a lot of employers would much rather take on someone who's made ten albums by themselves with their own gear and ca actually do it quite well than someone who's been through a course like this, or any other, that knows exactly what they're doing and why they're doing it and all the theory behind it but actually have never made an album.

Jez: Experience first; and theory and other things 'on the job'.

s6: Yes, and just pushing themselves to be a recording engineer rather than saying "I'm going to learn how to be a recording engineer".

Jez: That's a very interesting point because, when you talk about going out and buying the recording gear: for most people that would have been prohibitively expensive to do 20-30 years ago but now perhaps is something which people can do more easily. Except for microphones of course, which stubbornly refuse to go down in price in fact they keep going up.

s4: I don't think it would be half as easy, a tenth as easy, if we didn't have this placement year that we have, to get a job later. I think if we'd just had a three year course, maybe not everybody but a significant number of people had done just the three years without the time to be trained up or experiment during [studio] down time, and things like that, we wouldn't be in such a good position to get a job because we wouldn't have the experience, because we haven't made ten albums (as s6 said). During our placement year we've got the opportunity to not make ten albums but work on one track from ten albums, or help on one part of a film or something like that. Sorry, that's a bit of a Tonmeister plug!

Jez: Yes, but an entirely reasonable one. Does everyone here feel that they've got benefit from doing the industrial year? **[unanimous agreement]** To go back to your idea of picking up the theory while you're going along. Let's say they turn round to you and say "OK, will you teach me the theory" and your predisposed to say yes, or they offer you enough money, what would you teach them? What things are important?

s6: I suppose you'd approach it in the same way that you might approach a mix, you'd get it sounding as good as you could, as quickly as you could and then home in on the details. So in terms of teaching it, you'd say that in order to turn sound into electricity you need a microphone, in order to record it you need to convert it into digital audio and have this program: there, we've made a recording. Now let's look a bit more at the sounds that we're recording, the microphones we might use, where we might put them.

Jez: There's a bit of acoustics in there, a bit of electroacoustics but we're starting from making the whole thing and then zooming in on some of the detail. Is there anything that people feel absolutely has to be in any course which claims to teach people how to sound recording?

s23: Listening. Personally, I've found that the music useful thing that I've learned on this course.

Jez: How did you learn how to do that?

s23: Just from having to listen to things along the course, and we did technical ear training things in the first year which at the time seemed quite a bore but is actually quite useful.

Jez: A few people nodded in agreement with 'listening'. It's essential is it?

s23: Yes.

Jez: That's interesting. People felt very strongly about that at this morning's session too.

Jez: OK, the last area I want to cover, as time is marching on, is: what do you think your employment is going to be like when you arrive wherever you want to be? Are you going to be with a large-scale employer, being paid a salary on a particular grade where you go up a salary 'bump' each year, you get a pension, maybe a bit of health care thrown in, dental plan, that kind of thing... **[laughter]** ...or are you going to be constantly living from week to week waiting for work to come in? Where do you see yourselves? Do yourselves as having stable, steady careers? Do you think that that's something that you can do, or are you going to have quite a precarious existence?

s10: Are you talking about when we reach our goal?

Jez: A bit of both: the getting there, but mainly when you've arrived at the role that you want to be playing what will that be like?

s10: I think the journey to being an engineer, if you want to be an engineer, is as 'in house' staff, traditionally; and then, no one employs engineers and producers any more, well Abbey [Road] do don't they so in order to reach your goal you will be freelance, living day to day.

s11: I don't think a job as a recording engineer is ever really safe. Speaking to freelance engineers during my placement year, they said that last year [2011] was awful, some of them going months without work and these are engineers that have been going for years at the top of their game; but now the engineers that they've trained up are now their competition as well. So I don't think it's ever going to be a safe job as a freelance engineer. There'll be points where you're either overrun with work but there'll also be months where there'll be none and I think that's the scary part.

Jez: Is that the way it should be? Do you think that's just the way it is and you just have to roll your sleeves up and get on with it? Could it be any different to that? Should it be any different to that?

s1: In relation to what was previously discussed: we can split the job of the recording engineer into either 'in house' which is, from what I've seen, incredibly small and there's only a couple of places in the UK that have in-house engineers and producers and assistants, that sort of thing, and this absolutely massive pool of freelancers where it just seems like a jungle, there's fierce competition to try and get the next project and you're always looking over your back; but the people who are 'in house' tend to be, especially people who are actually deemed to be recording engineers, incredibly specialist and they will just concentrate on massive film scores, or they will concentrate just on location classical recording in churches. They're just very specialist crafts, as it were, where knowledge is definitely required – I don't think anyone could just do it without having the prior experience.

Jez: It's a case of finding your niche? Finding something that makes you special, that makes you necessary?

s1: I'm really not sure, but I think that if you're considering becoming a recording engineer I think you definitely have to think about what sort of stuff you would like to record because gone are the days when you could record a pop track one day and then a massive orchestra the next. I think it is becoming a more specialist area: you will concentrate on pop and that side of things, or classical, or film. I could be wrong.

Jez: I think that will chime with quite a few people. Any thoughts then on whether that's fair, or right, or the optimum way of doing things?

s24: I guess that would be an argument that it's not as like engineering as other things. In a lot of the creative industries everyone is freelance, whereas in more traditional engineering disciplines the engineer can do the job regardless of what it is because he's trained to do that job. So he would have a salary and do a fixed job. As to whether it's right or not, it's quite hard to change those trends.

Jez: You say it's the creative industries that have this more ad-hoc relationship. I guess that might be for two reasons, maybe some others that I haven't thought of too. One reason is that there are lots of people that want to do the work and so therefore, with lots of people scrabbling for the same work, that work is always going to be insecure for the people that are doing it. The other reason is that there is a different kind of person in that industry who is not so keen as others may be on a fixed career structure: a ladder, a regimented thing where you get in at nine, you leave at five, you wear these clothes and that kind of thing. Is it either of those two things, or is it something else?

SM: If you think about acoustic engineers, are they accredited?

Jez: There is an Institute of Acoustics, that's a good question I don't know.

SM: You see there if you're going to do a concert hall you might not just get the phone book out: "oh, this acoustic engineer, they're all trained, they'll all be the same". You might find one person that gives you the reverb time measurement at the end of your concert hall [build] and it looks perfect but it sounds absolutely appalling, for some bizarre reason and you don't know why; the next person, they always sound brilliant whatever he or she does and people say it's a 'black art', rather like mastering. So do you think recording's a black art? Is it something that one person does magically, we don't know why, they've just 'got it'.

Jez: Yes, I think people do talk about these things as being a black art, to use an engineering term the process is a 'black box': something which does something and we know what the outcome is, but we don't know what goes on inside to make it happen. Is what goes on in a studio the same as what goes on in the design of a concert hall. Is it a black art? Or is it something which can be analysed and broken down and taught to other people, or somewhere in between.

SM: You're just listening for the big picture and the details and making the small adjustments and the big adjustments, all at once. That ability to do that, it's a very difficult skill and I suppose that's the black art.

Jez: OK, we've been going for over an hour now so is there anything that people want to add?

s24: I don't think anyone has mentioned subjectivity. There's subjectivity as well as creativity. You might associate engineering with having right and wrong answers and

maybe, without any right or wrong answers it can't be engineering. So if a civil engineer decided he's going to try and build a bridge out of spaghetti **[laughter]** that's clearly the wrong way of doing it and he shouldn't be called an engineer.

Jez: Whereas if someone working in the studio decides to do something like that...

s24: Somebody might not like but you can't say "that's wrong". Unless it was classical recording, there're more right or wrongs in classical recording, so maybe there's more of a closeness to engineering in certain aspects of recording than others.

Jez: That implies that in engineering there is trying to get to an optimum solution to a problem, and you're saying that if you can't agree on what the optimum solution is....

s24: maybe.

s1: I would disagree with that, I would say that there are just as many right or wrongs in recording as there are in bridge building. If a bridge falls down then it's wrong but if a bridge looks ugly is it still wrong? If a track clips everywhere and no one buys it because it's really hideous or it's far too quiet and no one can hear it, it's ridiculously noisy.

s24: but that's subjective though

s1: I think it does cross a line out of subjectivity to the point where it just doesn't work as a track and no one will buy it. I suppose it is subjective in the sense that people will either buy it or not buy it, but I think that people can definitely say that "this was a success" and "this wasn't a success". I think there are lots of examples of that in audio.

Jez: So you're saying you can come up with criteria.

s1: Yes, I think some things work, some things don't.

Jez: I see what you mean when you're saying it is subjective to a certain extent but perhaps the kind of technical review process that audio would go through in a broadcaster might be considered a measure of whether it's been successfully achieved or not.

s25: I think it's a lot easier to say "this is a bad recording" and there will be certain criteria that you can use, but saying it's a good recording is a lot more about personal taste and down to the individual.

Jez: So defects are quite straightforward to define. Although I remember listening to Prince's Sign O The Times for the first time and I thought "does he know that vocal's distorted?" but now I like the distortion on that vocal.

SM: One final analogy: Having to do sound in cinemas for a long time, it is extremely subjective and I found that I was really doing it for myself because, a lot of the clients, if they could hear the dialogue, they could hear what people were saying and it sounded alright they wouldn't even know if I had it in mono or stereo - some of them did who very, very fussy but normally there was enormous range and it was, again, judged as a black art because you've got these horrible rooms a lot of the time which you're fighting against, and when I started doing picture for digital cinema then it becomes a science, we talk about engineering: does the picture fit the screen? do you measure the colours and they come up like this within these tolerances? Is the brightness correct? Is the picture distorted? Is it out focus? That sort of thing. They're quantifiable things that anybody technical could do. So there is something about sound, which is not quite like that where you can actually specify something in an engineering way. There is a process of choice and what some people like and some people don't.