

## **CONFIDENTIAL**

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Interviewer(s): Alison Matthews

Respondent(s): Luke Harrison

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**INT: So can you state your name for the audio please?**

**RES:** Luke Harrison.

**INT: Ok. So thank you very much for agreeing to be interviewed. So I just wanted to ask you as obviously you were part of the creative team behind the VR360 film document by [name 00:00:23] and really my kind of research interest is as you already well know are in how a one to one or a kind of participatory performance can be documented more creatively through the use of 360 video technology. So I am curious about well maybe if we can start with you talking about what your experience was like of being in the room, so being in the studio and everything that led up to and including the shooting process. So obviously there was a certain amount of research you did with regards to appropriate kit?**

**RES:** Yes.

**INT: And then there was also a certain amount of research you did in terms of testing that kit and then finally obviously the actual recording process. Can you say anything about that?**

**RES:** Yes, so first there are two elements to it. There is recording the sound in general and we are obviously not talking about mixing it yet but the actual recording and capture of the sound in the sense that it is one thing to record and capture

sound but then there is recording and capturing sound for film. So if it is just an audio piece it is relatively easy because you can put the microphones wherever you like. In film, traditional film, it is harder to a point because you have to either hide mics or put microphones in certain places sort of outside of the camera shot. But then because this is theatre this is even more difficult because you know microphones in theatres are traditionally lavalier mics but then because this is a 360 video as well that is even harder because there is nowhere to hide a microphone, unless you are very canny.

**INT: Mmm.**

**RES:** So the only way you can really place a microphone to hide it is directly on top of the camera and that camera could be a significant distance away from the performer. So thankfully in this piece as the character i.e., you, use a microphone as part of the piece we decided to record a traditional feed from that microphone, the hand held one, and also record a feed using an ambisonic microphone which is made by Sennheiser. So until recently these microphones haven't been particularly affordable, so the previous mics were called sound field mics and they were quite expensive. And the way they work is they have four microphone capsules in it as opposed to the traditional one microphone capsule and the way they are arranged means that those signals can then be mathematically processed.

So the recording is like imagine you are at the centre of a sphere inside a sphere, so the microphone is like and you therefore when you listen back you are at the centre of the sphere so it is like a spherical recording that is in it and then the mathematics can decode those microphone signals to position the sound anywhere in that sphere. Or, in this case, as if you have that one microphone and you walk around it, it knows where in space you are. Walk around it, up above it, fly around it so it is kind of a spherical recording.

**INT: Ah ha.**

**RES:** So that microphone we used a Sennheiser ambio mic which is now probably the most affordable version of that microphone on the market compared to the previous ones which were by a company called Soundfield I think. And that was the one which we placed directly above the camera and that would capture general pickup. Now I wasn't sure how effective that one was going to be because of the distance between the camera and you as a performer. So the further away you are the farther away you will sound but microphones have a, you know, the distance away from a microphone can sound further than it does in real life depending on all the electronics basically.

**INT: Is that why you chose to have the feed from the hand held mic and the camera itself in the mix as well, to record those?**

**RES:** Yes well it is the hand held mic which is what we ended up using, we only used the hand held mic, is required because you have it in your hand and it is a mono source so it is one source you then have to position that recording. I had to position that recording myself afterwards using the VR tools, which is fine, but in terms of the actual recording, the recording of it is a trade-off. Because that is close to your mouth and because it is a live recording you get a lot of ppth and ssss and those kind of noises which aren't necessarily, well accurate to localised to the person because that microphone in the club will be coming out of speakers.

**INT: Yes.**

**RES:** So you have got the choice of do you have a natural kind of recording from the ambio mic on the camera which represents the audience perspective except that also picked up all the atmosphere of the room which wasn't particularly quiet.

**INT: Yes like the white noise.**

**RES:** Yes the white noise and all the air con and things like that which is disruptive but also because of distance from the performer doesn't give a particularly attractive recording. Or you have your hand held mic that you were using which was better than what we used but actually to be completely accurate to how it should sound should have been fixed to one point coming from in front of the speakers if you were being accurate because that microphone would have emanated from the speakers in the room. And the other thing that we could have done but we didn't, and actually it was good that we didn't, but if we did it again I would try and hide a lavalier microphone on you because that would sound like a more like natural speech I think. It would get rid of the pops and things that you normally get. But that is by the by.

**INT: Yes. So was the Sennheiser, basically the Sennheiser did not work as well as you thought it would?**

**RES:** No because I think it still did exactly what it is supposed to do.

**INT: Right.**

**RES:** But what it is supposed to do isn't necessarily suitable for what we were doing.

**INT: Interesting yes.**

**RES:** Because it is effectively it is like a 360 video camera but for sound. I mean it picks up everything that is around it but it depends if you are trying to achieve a natural recording or what. So if you record an orchestra for example the traditional way to record an orchestra is you have a stereo pair of microphones directly above the conductors head or thereabouts which are then enhanced by pickup mics. I would imagine that Sennheiser mic or similar ones would be very good in a controlled musical space in that position and to pick up everything

that is around it. But for this it didn't quite work. It was still an acceptable recording but it just didn't quite fit what we were trying to do.

Well actually I say it didn't quite but it didn't achieve what we wanted to do. It did achieve that it picked up sound from all around it and actually it *did* give a nice sense of the space and an envelopment and the noise that was present in the room because that was being played when it was played back did sound like it was coming from round you, *did* add an extra dimension of space to the recording which you wouldn't have got from a single or stereo microphone.

**INT: Yes.**

**RES:** So it did exactly what it was supposed to do it is just that wasn't a particularly pleasant recording to use with the piece. And what might have been a better idea to use it was, in fact I can't remember if I did this or not, I might have done this, I might have just used it as like a 3d ambisonic ring tone so there was a small amount of the room underneath the original. You see you take the room and that is the immersive you know you take that from the camera so you have got the sound of the room immersing you but no speech and then replace just use the speech from the hand held mic.

**INT: Right.**

**RES:** Right you would in a film technique. You have the room tone plus it acts as a bit of a glue so if you heavily edit the dialogue to get rid of onset sounds and things like that you have two or three minutes of just room tone captured of absolutely silence, nothing but the room. And then that sits underneath as like a low level noise to kind of glue all your edits together and it just focuses all the sound together.

**INT: Mmm.**

RES: I don't think I did do that because actually the nature of the hand held mic when we ran it through the post production process when we switched to that added a nice ethereal, well not so much ethereal but because there was no atmosphere it kind of gave the auditorium this unearthly sense.

INT: **Yes, which fits the content?**

RES: The fits the content yes.

INT: **So I guess thinking back and I know it is hard because it was a few months ago but thinking back were you to sum up what your approach was when you set up the sound recording devices what were the major questions you think you had before you even got the result of what you had? What were your questions would you say?**

RES: Well firstly it is not film and it is not an audio recording in that sense and it is not theatre because it is not live. So where, you know, just as in the piece where does it sit and how do you best record that? So I thought to myself I guess consciously or unconsciously if you can't record it like you would record a film for the reasons I mentioned earlier, you can't just record it as if it is an audio recording because then you would want microphones in all sorts of different places which would be in the film. It is theatre so you can't just have microphones placed here, there and everywhere so again you would have to hide them. So my questions were, 'Is this going to work? How is this going to work?'

INT: **Yes how is this going to work?**

RES: It was very difficult to know what it was going to be like coming out of it.

INT: **Mmm.**

RES: So I have done some tests with those mics before but they have been on things like musical instruments or bands which is one thing, and you wouldn't necessarily use it in traditional film. If it played because it has to be decoded and played back over either headphones or over an expensive surround sound system, you know an ambisonic surround sound ring which is not really available, well there is one over the road but booking it.

**INT: But the update?**

RES: No that is way for field synthesis, that is another.

**INT: Oh a new study?**

RES: No there is one in Newton it is just..

**INT: Oh it is just for acoustics?**

RES: Yes it is just for acoustics and I probably would be able to get access to it but it is just time.

**INT: Yes.**

RES: And so yes it is funny it was difficult to know what was going to come out of it until we played it back and we wouldn't have a chance to know what is going to come out of it and play it back until we did it. So it was very much like let's see what happened which is why we made sure that we got the traditional recording on it.

**INT: Exactly the three, and in ways like the traditional and then also the cameras.**

RES: Yes absolutely.

**INT: Yes the camera zone and to know what that is like on the base line.**

RES: Absolutely yes because at worst you would still have your piece with the kind of camera audio although the audio on that camera is also ambisonic but yes at least you would have some sound.

INT: **And it was surprising didn't you say that the camera's sound was better than you expected it to be? I mean it wasn't great but then..**

RES: It was, the camera sound was better than it was expected to be considering it is an ambisonic microphone placed in a tiny camera thing like when you see where your microphone is on a mobile phone. That can't be any good, but it was all right actually.

INT: **Yes it was all right. So fast forward to the editing so let's say you get the first edit of the film can you talk me through a little bit like then what your process of mixing was and how you began? So obviously you have already touched on the fact that you determined that the ambisonic result was not actually appropriate to the kind of content. How did you then decide on the right mix for the piece if that makes any sense?**

RES: Yes. So the first thing, all the audio I bundled together so every recording was essentially one large **[wild 00:14:00]** file. So you had four channels for the ambisonic, a channel for your loop pedal, a channel for the dialogue and I think there was another channel as well and they were all bundled together. And they were named and I took notes and then they went to Adam. So when he had edited the video all the edits he made, he also made to my audio file. He didn't use the audio file per se but then I knew at least all when he exported the video and sent me the premier pro project it had all the audio underneath it and when all the cuts are right I can then take those and explode those in the audio software so make them into individual audio files and then everything is in the right place. So I didn't have to synchronise any audio that was done in the video edit.

**INT: Yes.**

RES: And we made sure because that was really important to make sure because otherwise it would have been really, really difficult. And that is just one of the things you know to do from experience. But when it actually came to it so then it was like, 'Ok this is what it sounds like with the ambisonic,' played it back and we weren't so keen and then it was ok and then it was ok, 'How now do we you know use the original, use the other mic feed and make it work?' So the first thing I did was I went to the general practice for dialogue. I did what a dialogue edit would be in film.

**INT: Ah ha.**

RES: So I tidied up the dialogue the best I could so made sure there were no pops, splats, funny noises there which didn't need to be and tried to diminish them and do a level mix of the dialogue. So actually the dialogue is level mix so when you were loud or when you were quiet I brought them in.

**INT: You brought the extremes down right? Is that what that means?**

RES: Yes which is kind of what a compressor means, but it is much more natural to do it manually. I think I may have done it with the compressor on your voice to capture some of the little bits but generally I made sure that all your dialogue, not exactly but was one continuous level throughout because obviously as you move your mic around move back and forwards it will change.

**INT: My voice is going to change yes.**

RES: It is going to change but for the piece it needs to be consistent as the dialogue is where the story is so I went off that as in film. And I mixed that to what is called EBU128. (Laughter) It is the standard for, it is the European standard for television and film audio levels so these came in nearly 10 years ago now. It just

means that you mix to a level which is an average, it is an average loudness. So what that means is in the past for when you needed to mix for TV, here we go!, you used to mix to what is called a peak level. So that was called PPU and every TV station or similar had if you want to mix to make it broadcast legally you had this and this peak level.

Over time people used compressors to make it louder and louder and louder so some TV show adverts would be really, really loud and when you go back to the TV show it wouldn't be as loud so you are constantly turning your TV up and down. And the idea was that it would give a consistent level but that has been going on for 50 years or so, so over the past 15 years they have changed to an average loudness level which means that the human perception of it means it remains an average loudness.

**INT:**     **Ah ha.**

**RES:**     But the good thing about that is it means it is more natural because you can have loud moments and you can have quiet moment so it brings in dynamics back in to when you are mixing which is really nice.

**INT:**     **Right ok.**

**RES:**     Which is obviously I wanted to do that because it is relevant for what you are doing. So you dialogue is at an average loudness level in terms of perception of the human ear and I mixed it to that with a meter. It is just a level on screen and makes sure it remains pretty much around there and then I brought in any other sounds around it. Once that is done what you have got is dialogue which is just static and the action is happening on screen, in fact I didn't even have the video open at this point I was just using my ears but then that doesn't move with you as the performer.

So then we used these new tools called DAVR Pro which is a plug in with an add on to that called DAVR Spatial Connect which connects an oculus rift or VR

headset but we are using an oculus rift which is running on one computer with the video playing into the oculus rift. And that links up with my audio software, I am using a product called Reaper, and the video plug in is in, so the 3d spatial audio plug in so I can hear it in 3d. And mix in 3d is running on my audio laptop inside my audio mixing software.

**INT: Ah ha.**

**RES:** The oculus rift is on a second computer and that second computer is playing the video back and those two are linked over a network so they talk to each other. So essentially then what I did was I went into the video let's say, so the video was playing back, when I pressed play in the video on a little, I have got a virtual mixing desk essentially, well transport it is called but I have got a play, a stop and a rewind, so I just get my oculus rift controller, I press the play button and the video and the sound starts playing in sync. I can then, the DAVR Pro soft plug in turns that audio track into an object inside the video. So I can then take the objects in this case your voice and what I did first was I turned on my automation which records any movement you make and I just track you around the room in real time. So I made your voice follow you as an actor around the room. And that is back and forth so it is in that 3d sphere I was talking about earlier so as if you are sat in the middle of a sphere.

**INT: Yes.**

**RES:** So it is backwards and forwards, left and right, up and down, so I made that track you. And then that is recorded data so when you play it back again that moved with you.

**INT: Yes.**

**RES:** The clever thing about this software as well is that it has got head tracking on it so whereas as that object is following you around, well it follows its own position

in space of X, Y and Z co-ordinates if I moved my head to look at something else..

**INT: Mmm, the object stays with me.**

RES: Yes the object stays with you because it has got your head as a position in space and the object audio is positioned in space. So if that object was straight above me or if you were straight ahead of me, the sound, and that stayed straight ahead of me, if I turned my head 90' one way the sound would then sound like it was coming out, it wouldn't follow my head, the sound would stay static. Just like in real life if I do this, (clicks fingers) you know.

**INT: Yes, yes.**

RES: Which is quite clever and it adds another level of realism. This is the first time I have played with that properly.

**INT: Ok so it is the first time that you have played with or applied that kind of..?**

RES: Yes using the template and applied yes.

**INT: Or applied that kind of [00:21:06], or the 3d thing?**

RES: Yes and the 3d thing and I was really impressed with how it works. I knew it was going to do what it done as I had done some research into it and I was like, 'This is really cool.' So we bought it and then it does what it is supposed to do. Now there are from that there are other issues, not issues but things like in the video it is hard to tell how far away you are. So obviously you can move the sound back and forth but it kind of goes up to like 30m so if you push it too far you sound like you are 30m off. It is supposed to be representing 30m.

**INT: Yes, yes.**

RES: But then you can put you in different environments as well so I chose the right acoustic environment so I think it was a small club room which seemed to sound..

INT: **Right oh interesting so it is like a patch or like..?**

RES: It is essentially a reverb reset but it just puts *any* sound going through that plug and into that space as well. So I just tried to give the theatre like a unified sound because the microphone you were using was very close to your mouth. So because it is close to your mouth as you move further away from the audience you should sound, well you would sound further away in real life so it adds more reverb the further away you are, that is the way it works.

INT: **Yes, and so can you talk about in the later edits that you did, or the later mixes I should say that you did what sort of more, because you made a few kind of like tricksier choices, you know?**

RES: Oh yes.

INT: **So can you talk a little bit about those and what drove you to make those choices in relation to the content I suppose?**

RES: So the thing that needed to be accurate was the dialogue that I have just talked about. In any film you start with the dialogue because that is where the story is as it were but then there were some moments with popcorn that you suggested. So we used popcorn that appeared from behind the audience which hopefully then made you turn round and think, 'What was that?' And then some audience would be on the video.

INT: **So it was like a cue, more like a spatial cue?**

RES: Yes a cue, a spatial cue and that was your idea. But then I also started to, because the loop pedal sounds were all mono so you know there was just one,

I wanted to give them a little bit more movement and a little bit more kind of oddness maybe. So I just started moving them around (laughs) you know I was just playing and it was really good.

**INT: Yes.**

**RES:** Because I had both, with both there are two handsets with the oculus rift and you can use them both so I selected them both and just kind of like started doing a little kind of movement around the studio like a dance almost with the music timed it. And it was really just playing and I was trying it out but it seemed to work quite well.

**INT: Yes exactly and I think again what that shows is that this kind of editing tool is allowing us to take an element of the performance which is this airiness or its other worldliness and actually amplifying it.**

**RES:** Yes.

**INT: I don't mean amplifying it in a decibel way but I mean like it is expanding on it and actually applying that principle to the sound editing and that is really interesting I think.**

**RES:** Yes and I think that was more sort of the way that we had used it before, well I say before but what we did with the dialogue and the popcorn and things like that is almost how it is intended, how they imagine it to be used. So you have got a video and it is a tool to apply sound to 360 video in the way you would with a traditional video so the spaceship moves from right to left and then behind you we can track it and move it right and left from behind. Whereas you know to use it on a recording of a film of a performance it is different because you can then use it to be creative in that sense. I would imagine you would use it in the same way if you were doing an audio drama. People tend to play with the sound a bit.

**INT:** Sure but again like you know I think what isn't often present in how people conventionally consume audio drama is this sort of audio book, this immersive audio visual element so I think that the fact that the mix does these swirly things..

**RES:** Yes, mixes it up (laughs) that is what I would call it.

**INT:** So I think that is working with a very particular medium of the kind of head mounted device you know headphone combo but is also again because for me the interest is in how you make someone who is not in the show feel like they are in the show, you know?

**RES:** Ah ha.

**INT:** And having seen, obviously you haven't seen the, well you have seen the show which was pretty much how it was when we filmed it but how can you sort of convey the more intangible elements of a live immersive experience to an audience member? And I think that the choices that you made with the audio *really* expand that and extend that.

**RES:** Oh ok. Yes I never really thought about that as I was just playing with it.

**INT:** Well if you think about it from the perspective that I am coming from is that live performance always struggles with how to document itself.

**RES:** Yes.

**INT:** And so the conventional method of video documentation for live performance tends to be like a 2d static shot camera you know, with probably just the audio feed from the camera itself. Like we are notoriously bad at filming ourselves you know?

**RES:** Yes.

**INT:** And so the interest for me is in what if you tried to make a piece of documentation that is a recording of the, in some ways not a recording but a document of the ideas within a live performance but you use the particular possibilities of the medium into which you are putting it. So you know 360 film and the audio that comes with that to actually not just like faithfully record it exactly as it was which would be the Sennheiser ambio thing but actually to really apply the artistic principles of the live event to the recording.

**RES:** Yes absolutely, it becomes its own thing at that point.

**INT:** Yes.

**RES:** Yes because in some ways I am kind of glad that I hadn't experienced the piece as a member of the audience because then I would be like..

**INT:** 'I want to sound like that.'

**RES:** Yes right that is how it feels or that doesn't sound too good.

**INT:** Yes.

**RES:** But yes it was also just a good way because obviously it gets to about half way through before I started really playing with the thing which is a good time to do it.

**INT:** But that is also what we did with cuts, with the film cuts yes.

**RES:** Because as with anything you need to..

**INT:** Establish a baseline kind of thing.

**RES:** Yes and there is a reason why there are these cuts in film because if it was one shot all the way through you would just switch off. So yes it was interesting to use that. There was limited sound content in it but that was good though

because it was the first time of using this kit and I think you know if we do a piece like we have been talking which follows on from this and that is designed from the ground up there are so many more things you could do. Like you could have when you use the sound, when you use the oculus rift you push it back and forwards and it smoothly goes back and it smoothly goes forward but you can still edit that. You don't have to use the oculus to do it. So you can move it around with the oculus and then break that up so it discretely jumps around like immediately switches from one side to the other and back rather than that smooth motion. So there are lots of things to play with.

**INT: Yes and it really makes you, what I think is interesting to this type of approach to editing both film editing and sound editing mixing is it makes you think about the sort of like feeling that you want to engender in the audience member.**

**RES: Yes.**

**INT: So it makes you think about affect in terms of do you want to make them feel disorientated, how can a cut make them feel disorientated and how can audio work with that? So how can an audio device make them feel disorientated, make them feel comfortable, make them feel located within a particular space or not located you know? And something I am really thinking about is, so like Mark Fisher has this idea of he is a film critic actually but he has this idea of the weird and the eerie. And so the weird he says is when you have a thing and another thing and the two things don't go together basically like a juxtaposition. So you have a club environment but you are the only one there and he talks about David Lynch's work as often living within the world of the weird because you have a thing and then you have a thing which doesn't quite go with that thing.**

**RES: Oh yes right.**

**INT:** And then the eerie is more like atmosphere so the eerie is more about a sense that, so he talks about the eerie a lot with landscape. So he talks about the fact that the eerie is often times when we you know might see a landscape or see an image and we feel like it should be populated but it is not. Like we feel like there is an unseen presence there that we can detect but can't quite locate. And anyway in this whole project I have been just in the back of my mind thinking about those two definitions and thinking about the ways in which the piece kind of works with this idea of the weird. And that it is a sort of epic you know in terms of it is dealing with epic narratives but then also like this epic thing of a singer and a club which is something which we associate with a crowd and then the weird you know juxtaposition of that with you being alone.

**RES:** Yes, yes.

**INT:** But then also this idea of the eerie is probably less applicable to this particular thing but again this idea that there are unseen forces in operation and something which in some ways I think the sound helps do because it is sort of about environment and atmosphere. So that could be an idea for us to work on.

**RES:** Yes totally (laughs). I think as well what I found quite interesting is and what I brought from it because of the work I have been doing since then using the same tool is how then the ideas that you bring in that could then be fed back into the live version of it.

**INT:** Yes, yes.

**RES:** Because you can test what works in that environment and try things out without having to keep testing it out in a live environment.

**INT: Yes and so for you I mean just off the top of your head for you from this were you to apply some of the things you learned from the recording and mixing process to the live version what might those be?**

RES: Umm, so I mean if you take the backing tracks for example you know the loop pedal I would figure out a way to split them somehow. You know I would break them out and make it more, you know, move around the room more with more speakers and pan it around but then by doing that, that would probably remove a little bit of control from you but then whether that matters on that. But then as I say that might not matter.

**INT: Yes but that is just about logistics.**

RES: Yes exactly. Yes so you could if you know that you want a sound to be in that corner then that corner then that corner then that corner and you have planned that then you know and can plan where to put speakers.

**INT: Mmm.**

RES: This is what I have been talking about with the side project I am doing with the museum thing is that you can try these ideas out and then go, 'Right that is where I would like to put a speaker, that is where I am going to try this.' And work out where the problems are and then you are not having to book a theatre to try it out, you are not having to book your time or the musicians time.

**INT: Yes you can try it out as a sample sort of made version in the virtual world and then go in and apply it just really saying, 'I want it there, I want it there.' That's really interesting.**

RES: Yes in the headset and then work out, and it is never going to be an accurate representation because, well I say never but this is the first time this technology has been at the consumer level and by that I mean it is still..

**INT: Expensive**

**RES:** Yes it is expensive you have still got to buy a computer and a headset and X, Y and Z but for under £5,000 you can buy this stuff that I would still say is a consumer level technology. The Soundfield mics which are the original one of those ambisonic microphones are £3-4,000 just for the microphone and that is a professional piece of equipment so the price of this is coming down. So anyway yes you can plan these things out but you are in a sphere which is not the square of a room so it is never going to be totally accurate but it can at least stimulate you to think, 'Oh I wonder if I do that and then move that in an arc?' Because you are moving it with your hands and using the head and using your eyes as opposed to the traditional pan pots and rotary dials of the traditional mixing.

**INT: Yes linear more.**

**RES:** Yes. So it did feel very intuitive to move the sound all there and move it there and try crossing it over because you are using your arms. Everyone, well most people have very intimate control over your own limbs whereas you don't have that same thing with say a pan pot on a mixing desk or a joystick on a mixing desk to move it around.

**INT: Mmm.**

**RES:** Or in the software, you can draw these things in the software but again that is so if you think of moving it around in 3d space when you record a movement it is basically recording a movement across the X axis, a movement across the Y axis and a movement across the Z axis so back and forwards, up and down, left and right in this sphere.

**INT: Ok.**

RES: And you can individually draw those things in the lanes but again you have to draw them separately. You can use a graphics tablet to do that which gives it a bit more flowing-ness with your hands but you do have to do them individually whereas the oculus, using the joysticks you are using your own limbs, your own fingers to press the buttons as you do it and then you move it how you want to move it. So it has got that human almost dance kind of perspective to it and you feel like you are in a much more control of where it is. Although I say that, I felt like I was in control of it but the amount of people I have said just to play the piece back on another type of headset who can't get their head round the fact that the thing is a pointer because they have cut off their vision from, I don't know.

INT: **I know, yes.**

RES: And I mean just finding that in itself is interesting in saying, 'Hey yesterday three or four or five people looked at my piece of work on the oculus.' And a couple of people, sort of people over the age of 40 they just could not understand what the pointer was. And I said it is just like a virtual, so I had to play the video for them and then put them on.

INT: **I know yes. So last question, if you were to describe what we made if you were to sum it up the thing that we made, the thing that now you can go and look at, how would you describe it?**

RES: I have always thought of it, I mean the idea I have had of it in my head from the start and how I still kind of think about it but I would have to, I probably am re-evaluating it as I mull it over. But it feels like halfway between live theatre and theatre that you would access from something like national theatre live.

INT: **Mmm.**

RES: So national theatre and things like that are put in cinemas but that is a multi camera edit so really it is television or cinema. This feels halfway again towards live theatre. It is definitely not live as there are lots of things that still make it feel recorded, even if there was one camera all the way through it would still feel recorded. You know it is not live, there are no hapticks, there is no breath and if you look down you have got no legs, you know, that is kind of it.

INT: **Yes, yes.**

RES: But I certainly think it is different, it is a different thing and it is kind of on its own. And from my angle it feels like a sonic experiment, well then it was for me because it was the first time I used it but I think it works really well with the piece. But yes it is just its own little first forays into this brave new world.

INT: **Cool, well thank you very much.**

RES: That's all right!

INT: **Interview terminated!**

**Audio Ends: [00:39:03]**