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Investigating the sound design process: Two case studies from radio and film production

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Abstract: This paper presents two case studies in which the sound design processes of two professional sound designers, from radio and film, are examined. Through a study procedure that uses techniques such as interviews, observations and a novel set of design briefs, the sound designers' unique approaches and primary concerns are revealed. Results from these studies aim to inform and consolidate the link between professional sound designers´ practices in media production and the field of sonic interaction design.

Keywords: sound design; creative process; Foley sounds; media production

1. Introduction

As new digital objects, with no inherent sound, are constantly being created the need for a deeper understanding of sound design practice and the role of the sound designer has increased. This is a non-trivial task, and much can be learnt from practices established in media production. Sound designers and Foley artists have a history of creating sounds for everyday interactions and objects in creative industries including cinema, games, VR/AR, etc. Research into the design and production of these sounds is in its infancy, largely disconnected to its closest practice in media production. Recently, the creative contribution that sound professionals bring to multimedia production has started to be investigated (e.g., Zattra, et al., 2019; Pauletto, 2019; Delle Monache, et al., 2021) and results reveal the richness of sound designers´ training processes, experience, and amassed knowledge.

This work contributes to this area of research by gathering new knowledge about the creative process of professional sound designers with the view to strengthening connections between sonic interaction design and the existing practice of sound design. This research aims to inform the development of new techniques and tools for implementing sounds for new digital objects, following an approach inspired by Dourish and Button´s concept of *technomethodology* (Dourish, 2001) where ethnomethodology investigations form the basis of the design of new technology. New tools, informed by professional sound designers, will

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assist sonic interaction designers, reinforcing links between theory and what has already been developed and culturally established in creative practice.

This paper presents the results of a study conducted with two professional sound designers. On the surface, participants seem to be extremely different from each other. They are from different generations, different gender, work in different countries, and within different media (radio and film). Results show that common concerns and strategies, which seem to bridge across these fundamental differences, exist. They also highlight unique approaches to similar tasks.

2. Background

Sound design is a means to convey information relating to the *function* and the *form* (Susini, et al., 2014) of an object or system. The *function* of a sound informs the listener of an event or an interaction that has caused the sound to be created. The *form* of a sound informs the listener about the characteristics of the object(s) themselves, e.g., the objects' size, whether the object is old or new, etc. For example, a knock on a door tells us that someone wants to come in (*function*), while the quality of the sound, *form*, indicates whether the door is made of wood or glass, or whether the knock is sad or happy (Houel, et al., 2020).

Sonic Interaction Design (SID) focuses on the role of audio and sonic feedback in interactive devices (Rocchesso, 2011). When designing interactions with individuals living with dementia, sounds were identified as important feedback to support said interactions (Murphy, et al., 2020). The breadth of knowledge required by sound designers is examined in (Özcan and van Egmond, 2008), as applied to product design.

Research on how design practitioners, in sound or other areas, think and use their creativity (Boden, 2004) is relatively recent (Schön, 2017; Dourish, 2001; Edmonds, et al., 2005; Cross, 2011; Hay, et al., 2020). Schön and Dourish have emphasised the dynamic nature of these processes (Schön, 2017; Dourish, 2001). They happen “in action”, and therefore require to be examined “in action” too. Empirical design research can vary between “in the studio” ethnographic studies, which have the advantage of observing practitioners in situ, but are context dependent and difficult to generalise; and laboratory studies, where tasks and protocols might be more contrived in order to control variables, however comparisons and generalisations are potentially possible.

Finally, intermediary studies, which aim to maximise the benefits of both approaches, are also possible however difficult to design and carry out. Despite the differences, all these approaches have been found to be effective in extracting new knowledge about design processes (Cash, et al., 2013). Ethnographic studies (Sharp, et al., 2016) employ a number of techniques (Fetterman, 2019), including observations of practice and semi-structured interviews, which help researchers identify key factors and methods undertaken by individuals within their everyday processes and practices. Pauletto (2019) has used these techniques to investigate the creative processes of film audio post-production professionals.

The think-aloud method (Ericsson & Simon, 1984; Boren & Ramey, 2000; Ericsson & Simon, 1998) can elicit knowledge during practice, in which participants are encouraged to speak their thoughts out loud, with minimum interruption from researchers. Using think-aloud techniques, in conjunction with traditional interviews, can provide a better understanding of what participants do (Eccles & Arsal, 2017). Previous research into SID where individuals and practices are observed have been carried out in (Delle Monache & Rocchesso, 2016). A workshop involving postgraduate students was undertaken to analyse their sound design process, where bottlenecks occurred, and the cognitive behaviours involved in the creative process.

Our research focuses on professional, rather than non-professional, sound designers currently working across a range of media. We contend that the practice of professional sound designers might be richer in approach and originality than that of non-professionals, and therefore more fruitful when aiming to capture the sound designers´ *reflection-in-action* (Schön, 2017) that could potentially be applied, in part or wholly, within sonic interaction design.

3. Method

A study procedure was developed for this study, which includes observation of practice in situ, an interview, and newly developed sound design briefs to be tackled by all our participants. A pilot study, reported in (Selfridge & Pauletto, 2021), confirmed that the sound design briefs we developed are successful in eliciting rich sound design creative processes. Our analysis examines the coding themes and time spent on each task in order to highlight similarities and differences in the processes between the two sound designers. A concise outline of the procedure is given below, along with a description of the sound design briefs. A more in-depth analysis of the sound design briefs is given in (Selfridge & Pauletto 2021).

3.1 Description of study procedure

A key element of our wider research is to understand how sound professionals conceive appropriate, original sounds for a given task. To obtain research data in this area, we developed an intermediary study procedure that has both "in the studio" elements and laboratory aspects (Cash, et al., 2013). It is based on ethnographic techniques (Fetterman, 2019; Arvola, 2010), and think-aloud methods (Ericsson & Simon, 1984; Boren & Ramey, 2000; Ericsson & Simon, 1998), which includes a set of specifically devised sound design briefs to be common across all participants so that different approaches to the same task can be compared.

The overall study procedure spans a maximum of 4 days and includes the following phases:

- Day 1: Initial contact and establishment of rapport (prior to Day 2)

- Day 2: Observing moment-by-moment (Dourish, 2001) practice (Duration: 4-8 hours)
- Day 3: Observing how sound designers approach given briefs (Duration: about 3-4 hours)
    - Brief 1: Abstract brief
    - Brief 2: Listener in focus
    - Brief 3: Case Study - The sound of air pollution
- Day 4: Final observations and follow-up conversation

The initial phase involves recruiting participants, engaging in dialogue about their role, outlining our research, and generally developing rapport. In the next phase, we observe the designers in their studio and learn about their *moment-by-moment* (Dourish, 2001) responses to the daily environment and tasks, through tools and practices. The activities of Day 3 are designed to facilitate *reflection-in-action* (Schön, 2017) during the initial stages of the sound design process. Having a set of common briefs gives us an explicit way to identify common practices, as well as highlight unique approaches leading to novel solutions. The briefs also aim to challenge participants' habits, open their minds and provoke creative solutions. Sound designers are located in their normal working environment, usually a studio, and are free to use any of the tools they are familiar with to illustrate the type of sound designs they are thinking of while responding to the briefs.

At the end of the briefs, researchers can seek clarifications, if necessary, without interrupting the thinking flow (a recognised technique within think-aloud methods (Alhadreti & Mayhew, 2018)) and participants can offer feedback on the method. Finally, a semi-structured interview is conducted at the end of the process to gather more precise background information from the participant.

3.2 Description of briefs

The *Design Thinking* framework (Cross, 2011; Platnerm, 2018), partially influenced the way the briefs were constructed starting with a very open brief and concluding with a more focused one. Additionally, researchers have a list of *what-if* questions to be used at their discretion during the session to stimulate further design (Platnerm, 2018).

The aim of the initial brief, *Abstract Brief*, is twofold. Firstly, to present sound designers with an open task that challenges habits that they might have developed in their work, and secondly, it is an opportunity for participants to experience speaking out loud their thoughts in the presence of the researchers.

The participant is presented with four coloured shapes and asked to choose one. This is the character they need to create sound for, which is described as walking happily down the road. On completion of this, participants are informed that the character has arrived at the

end of the road and that they are waiting for their friends, who are however not coming, so the character is now sad.

The second brief, *Listener in focus*, is designed to encourage the designer to explicitly consider the listener of the sounds being created. Designers are asked to consider one specific group of listeners, and then, once finished, on a different group of listeners, who may (or may not) be judged to have different values from the first group.

Participants are asked to consider how they would create the sound of a thinking, active brain that will be listened to by a group of engineers in order for them to understand it. On completion of this, designers are informed that the brain is now to be listened to by a group of people who are vegans. Obviously, engineers and people who are vegans are not mutually exclusive groups and indeed, sound designers can decide that their sound is appropriate for both groups. However, they could also decide to adapt their design for an audience depending on what characteristic of that audience has been highlighted to them.

Brief three, *Case study - The sound of air pollution*, is based around a specific, more concrete, scenario of a coat with an embedded air pollution sensor. This brief purposely presents media production sound designers with what could be defined as a sonic interaction design task. In this brief, the air pollution sensor produces a sonic output which informs the wearer about the quality of air at their location.

A route map of a journey in a city is given, and participants are invited to sketch the coat´s sounds. On this occasion, researchers aim to observe how participants tackle a brief that is presented more concretely.

In the pilot study (Selfridge & Pauletto, 2021) thematic analysis, we identified a total of 8 themes and 3 sub-themes that successfully portray the main articulations of the creative process. Initially, themes were derived from the data itself rather (Braun & Clarke, 2006). We then compared our themes with those, for general design processes, devised by (Cash & Štorga, 2015) adapted from (Wasiak, et al., 2010) and validated in (Cash, et al., 2013). Our final themes (see Table 1) adopt some themes from (Cash & Štorga, 2015) as well as add themes that emerged from the pilot.

3.2 Changes to the procedure due to Covid

Due to covid restrictions we were unable to attend the sound designers' place of work, we had to conduct the study via video calls. Additionally, we were unable to observe practice by shadowing a normal day of work because our participants' working days were highly "atypical" due to Covid: often they could not go into their studios and interactions with clients and colleagues were highly affected. We accommodated our procedure to the circumstances by asking the participants to describe to us via video call the process of making one or two sound design projects of their choice detailing the context, their techniques, thought processes and communication practices with other members of the

roduction team. Video calls were recorded, with notes and observations documented. Audio from the calls was thereafter transcribed and included in our analysis.

Table 1. Design process themes as identified by (Selfridge & Pauletto, 2021)

Themes	Sub-Theme	Description
Clarification		Seeking clarification about the brief
Constraining (Cash & Štorga)		Considers practical issues
Listener Consideration		Acknowledges and / or considers the listener
Personal Background		Identifies something specific from their own personal background and experience
Association		Where the participant associates the sound to something else,
Solving (Cash & Štorga)	Scene Ideation	Describes an audio-visual scene within which the object is situated
	Ideation	Generating ideas about how to tackle the specific sound at the centre of the brief
	Sketching	Very roughly creates a sound to explore and illustrate their ideas, as described in (Delle Monache et al., 2018)
Decision Making (Cash & Štorga)		Defines a specific way, they would approach the brief
Reflection (Cash & Štorga)		Speaks out loud the internal discussions, they have with themselves about their ideas (Halstrøm, 2017)

3.3 Participants

Participant A has over 35 years as a sound engineer working within radio drama for Swedish radio. When he took up this role, there were no educational programmes in the subject area and all knowledge had to be learned on the job. Although he has a wide experience in all aspects of sound (sound design, recording, editing, etc.), it is only until relatively recently (3 – 4 years) that he has taken over responsibility for performing Foley, in addition to recording, editing and mixing.

Participant B is a sound designer who works mainly in independent, artistic and experimental films (feature and shorts), but she also develops sound design for other media

such as VR, and theatre. She has been a sound designer since graduating from a Master in sound design in 2012 in the UK and works on mainly independent productions, carrying out the roles of sound editor, mixer and Foley artist when required.

4. Results and analysis

4.1 Observing and reflecting on practice

In a typical radio drama, Participant A would first record the voice in the presence of the director or the producer who would provide directions to the actor. For other sounds, Participant A would usually be left to choose his approach, with occasional communication with the director. Participant A´s role as primary sound engineer and sound designer of a production is usually clear, and often there are no other sound people involved in a production. During our session together, Participant A described the process of creating the sounds for a radio drama called "Turid-A viking saga" about the challenges faced by young royal daughter. Three main aspects emerged from this session with Participant A: (1) the use of sound as primary means to "give" a body to characters; (2) sound as signifier of presence; and (3) a heightened concern for sonic precision and clarity.

Participant A describes the main purpose of his work as providing a body to the recorded voice. He stated: "That's the purpose: you can feel that the voice has a body. That's what I'm trying to get to, to create." In radio drama, actors´ voices are recorded in a studio with very little possibility to replicate realistic dynamics created by body movements without compromising the recording conditions. Sound, in particular Foley, can provide a body for these voices by implying movement and weight. Footsteps, for example, or the sound of other activities done by hand, for example, provide a body to an otherwise "floating" voice. Participant A provides an example of how he created the impression of a body of a 10-year-old, as opposed to an adult, through the sound of footsteps. He says: "I did that [the footsteps] with my hands [in order] not to get too much [sound], and then I had to take away a little of the grass, leaves sound."

An additional challenge, particularly in radio is to be able to create a sense of presence even when the characters are not really active. In regard to this Participant A said: "Walking would be more like making steps, one at a time. But "being there" would be like small movements, get the feeling of being there but not going anywhere so it's just a little subtle kind of movement. Get the feeling of just standing there, but you're not just the voice, to add a little body to the situation." In Turid, this was achieved by the sound of clogs hitting each ever so slightly when the character is meant to be standing in her abode. Participant A also remarks on the relationship between these kinds of sounds and the voice: "when you make the sound, you want to make sound, but when you listen to it together with the voice, it's almost always too much. So, you have to do it until you get just a bit of movement on, maybe, a few places in the dialogue, but still get the feeling that there's a person."

In an audio-only medium such as radio, particular attention is paid to “get the right sound”, i.e., to get a sound that evokes the appropriate implied source. When the character enters the tent, the audience needs to hear and recognise the sound of the tent opening. Participant A said: “I went through our equipment lounge and tried some materials. What we have was what I can find there and then I found it: and that’s the right, that’s the right heavy, heaviness that I want” … “It should be [heavy], maybe an animal skin she had hanged over this, well, that’s what I figured it would sound like”. The chosen object is a thick piece of material often used to cover boats, which has a softer side and a harder side. Participant A continued: “I just used the soft side, because the slick side was really too hard, when you kind of shake it with each other. The sound was too hard. I wanted the soft sound. The hard side..., then you get kinda a nylon sound. It’s a lot of trying to get as close to the illusion as possible”.

During the session with Participant B, she discussed the 2019 feature film “Here For Life”, a kind of “fantasy documentary film” produced by Art Angel. This is a quite unique film, part theatre performance, part documentary, which portrays aspects of the lives of ten people. It is a commentary on disenfranchised lives.

Four main themes emerged from this session with Participant B: (1) the need to gauge the sound designer role in the project; (2) sound as a way to make the overall piece “cinematic”; (3) matching the uniqueness of the film with purposely created sound, and (4) creating a sense of stillness through sound.

Participant B described how at the start of any projects she needs to understand what the director and the producer really want: “I'm just trying to sort of get an understanding of what they are looking for in a sound designer”. For example, whether they want someone who can mix existing material, or someone who can create new sound material. She continues: “I’m always just trying to gauge what they want, but also how they speak about sound … how they feel about it”.

From the screening of the first rough cut of the film, Participant B´s main concern is to figure out what, in terms of sound, will make the piece “cinematic”. She said: “I'm always thinking about how to make it cinematic because for me that's the first, or one of the most important jobs of a sound designer when you're working on a feature film. Because the sound can sound good, but does it sound cinematic? Does it sound like what I think a film should sound like, when it's on the big screen, when you're in that theatre?”.

She further clarifies: “it's about using, I suppose, the space, and the size, and the scale to really tell a bigger story, or really emphasise your point.” ... “it's about using sound to give the moment more meaning, or to give it more poignancy.”

For Participant B, this aesthetic concern becomes a problem-solving process when, for example, the sound quality is very variable. She starts to “automatically work out how you're going to fix these problems, and join it all together, and actually make it sound unified”.

Then she starts thinking about the particular project in even more practical terms, for example, whether there is a need for Foley. She says: “my mind sort of started to turn to the nuts and bolts of actually organising it”. For “Here for life”, a film that does not have music, Participant B first thoughts were about Foley and who should do it, when, how much it would cost, and why a particular Foley artist or studio should be chosen to do it. The initial thought was to commission the work to a Foley studio, however the result could have a potentially generic feel to it. She said: “often, you can get something that's very good technically, but that doesn't have much nuance in it” ... “it's a very generic type of Foley, and, you know, and it's really not a generic film” ... “there's a lot of sort of space in it. There's a lot of quiet [moments] in it at times.” At the end, Participant B performed and recorded the Foley sounds herself, making use of her experience working with Foley artists.

In this film, B makes an interesting use of sound design and Foley to create a sense of stillness. She showed us a scene where the main character is sitting on a bed while a voiceover is playing in the soundtrack. She said: “what I wanted to do is to maintain that stillness through his voiceover, when he's in bed, and just I suppose trying to keep it as natural as possible.” She continued: “this comes back down to the Foley. In a scene like that, I just felt that it needed to have a certain weight, and I could have imagined it being like just too heavy “.... “the structure of it with the sound in place of music is just sort of setting the scene: the birds, what have you. But then having it ... not doing anything, let him do the talking … that's the focus. But then the hit with the glass, the bell-like thing, is another moment of punctuation, … it gets your attention. And there's a very nice moment as it decays, which is obviously in itself quite musical, as he then moves into probably the most kind of vulnerable part of what he is saying during that section, and then ... there's a picture car, … it's a transitional cut, and it's just using the sound, I suppose, to bring that along, or to emphasise that and to say, okay, ... we're moving, we're moving to another space, it's like kind of cleaning your ears or whatever, even though, ... he still carries on talking.”

In the next section, the results of our design brief session are summarised. Then in section 5, the results of 4.1 and 4.2 will be discussed.

4.2 Design briefs: Reflection-in-action

Participants were presented with the design briefs prior to the beginning of the think-aloud process allowing the researchers to record their spontaneous thoughts and responses. A comparison of their design ideas and processes while completing the briefs is given. Figure 1 shows that Participant B spent a longer time tackling most tasks compared to Participant A. During Task 2 participants were asked what if the brain was on drugs; during Task 3 participants were asked what if it was a stormy day, the wearer of the coat a dog, if the year was 2200 and if it was a luxury coat.

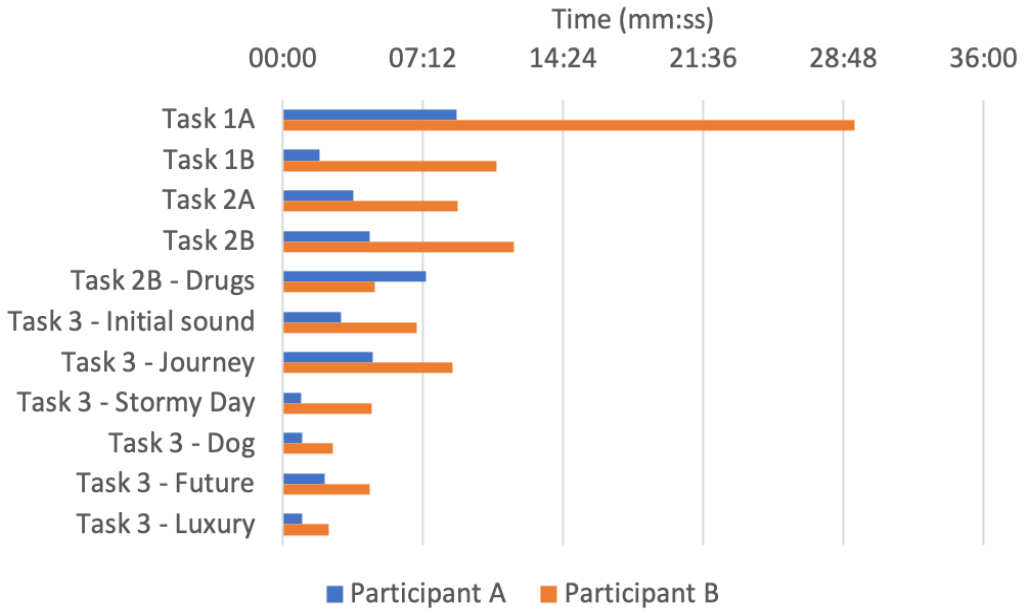

Figure 1. This indicates the time each participant spent on each task

Brief 1

When tackling the abstract brief, Participant A focuses on the concept of walking but would requires more information about the dialogue and the pace. In contrast, Participant B focuses on relating the sounds generated directly to the shape. Unlike Participant A, Participant B engages in sketching using her digital workstation and a synthesiser, experimenting with sketches to sculpt her thoughts and move towards a final sound.

Participant B´s process included more instances of Reflection and Scene Ideation than Participant A (Figure 2). They also participated in sketching their sound ideas which took up a large portion of their time. The disparity in time spent on this task can be clearly seen in Figure 1 (Task 1A).

When the scenario was changed to the shape being sad, waiting for friends, Participant A stated they would add sound effects of shoes turning on the spot to give the impression of a person waiting. Participant B investigated introducing more dissonance, and making the sound a-rhythmical, seeking to give an impression of vulnerability.

Brief 2

When discussing Brief 2, Participant A's first thoughts were to record a heartbeat, then to pitch shift and time stretch it. Participant B focused on the sounds of the electrical pulses in the brain with a vision of glass marbles colliding. She also had the idea of six sine waves, pitched across the hearing range representing the brain's mass. She stated that she would research processes that occur in the brain and with neurons to identify behaviour she could represent in sound.

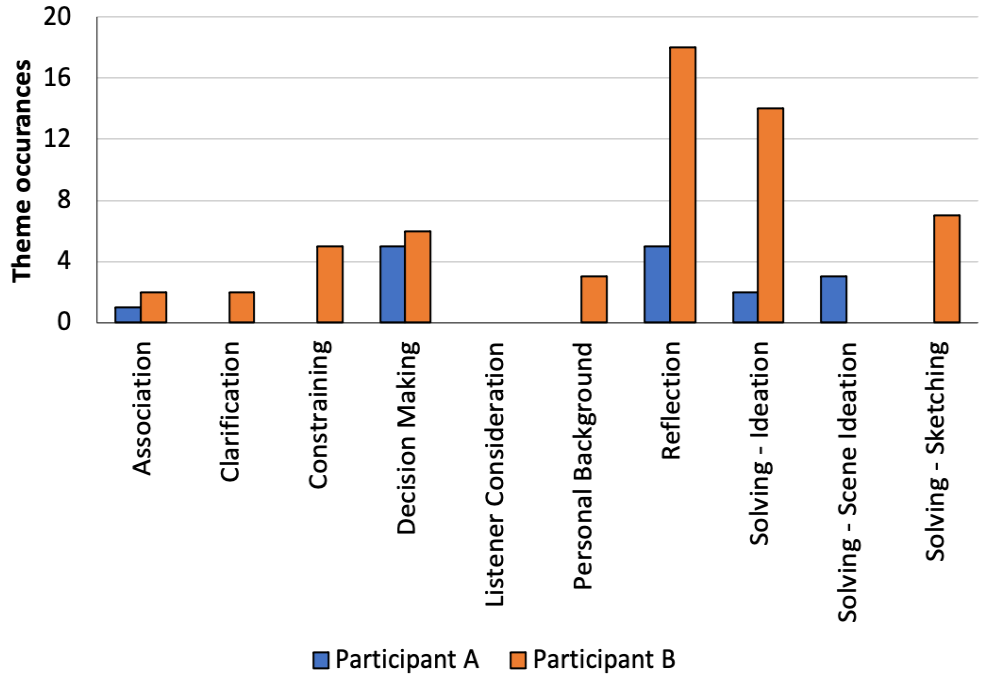

Figure 2. The different coding themes identified for Brief 1 (a shape walking happily down the road)

When the listener of the brain was changed both participants' immediate response was to question why this would change the sounds. Participant A then reflected on what vegans might wish to hear, shifting the sounds from "scientific" to more "emotional". Participant B decided to use more organic sounds, obtained by placing contact microphones into trees, bushes, etc., and experimenting with these. When asked what the design might be if the brain was on drugs, Participant A stated that it would be more disconnected, while participant B described her sound in terms of the analogy of marbles, but now moving faster and in a more chaotic manner.

Figure 3 shows that the participants´ creative process is more similar in this task. When the listener of the brain was changed (Figure 4), we can see that both participants considered the listener while progressing through their designs. The most common themes identified throughout the brief for both participants are Reflection.

Brief 3

When tackling Brief 3, Participant A described it as beeping sounds or the voice of a virtual assistant like Apple's Siri. As the wearer moves about, the frequency of beeping and messages from the virtual assistant changes accordingly. Initially, Participant B imagined the jacket as a filter to a noise source, giving wideband noise as poor air quality and narrowband as good.

Participants were asked if the sounds would change if the coat was worn on a dark, stormy winter's day. For Participant A this made no difference to their sound design, but Participant

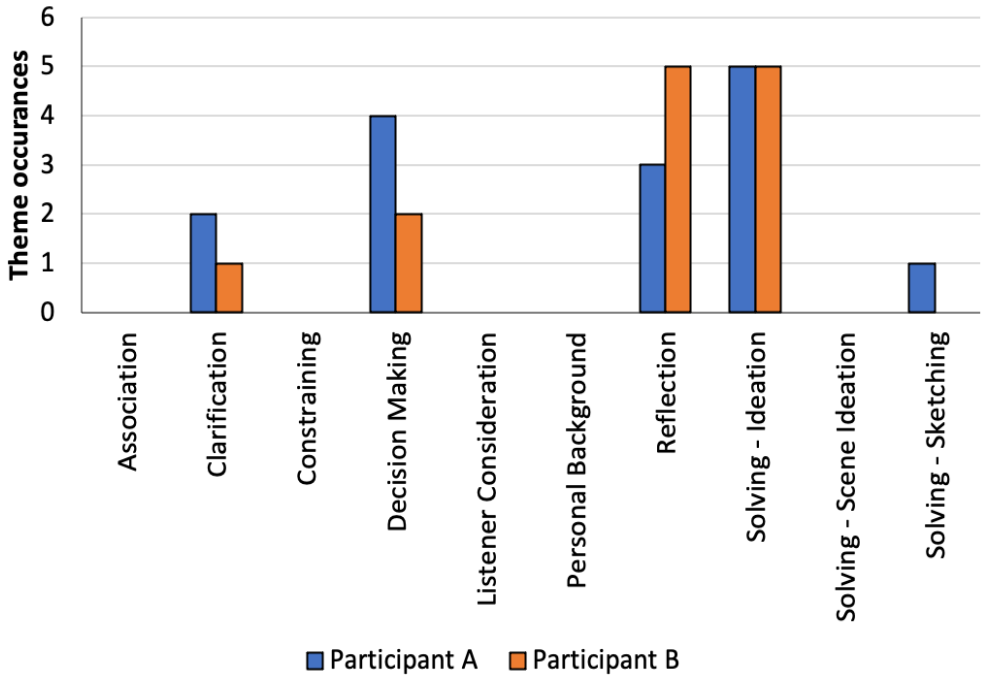

Figure 3. The different coding themes identified for Brief 2 the sound of a thinking, active brain being listened to by engineers.

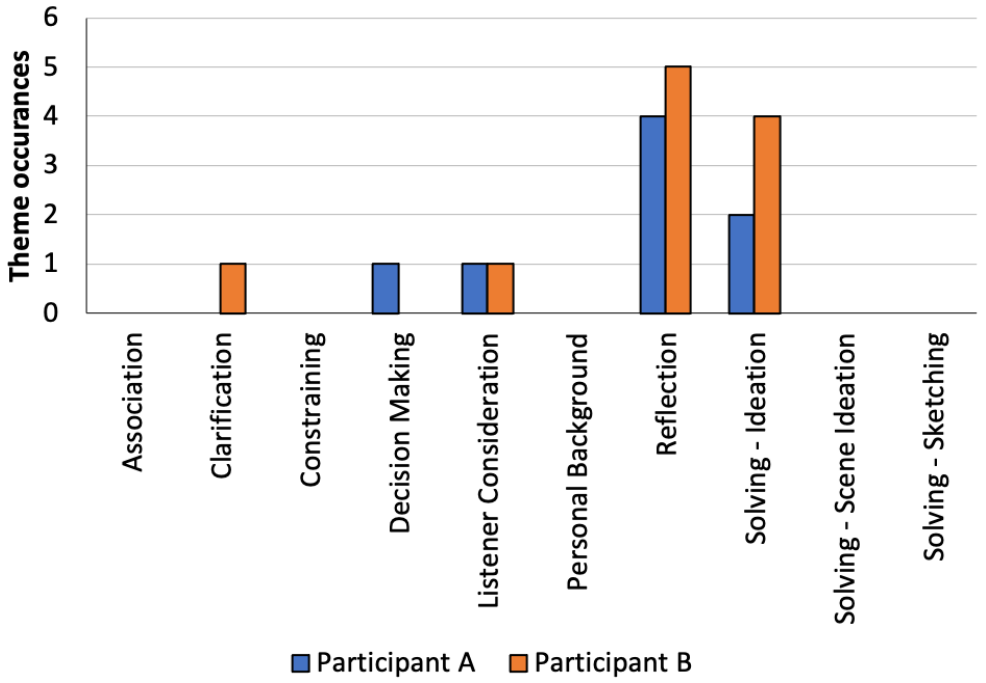

Figure 4. The different coding themes identified for the sound of a thinking, active brain being listened to by vegans

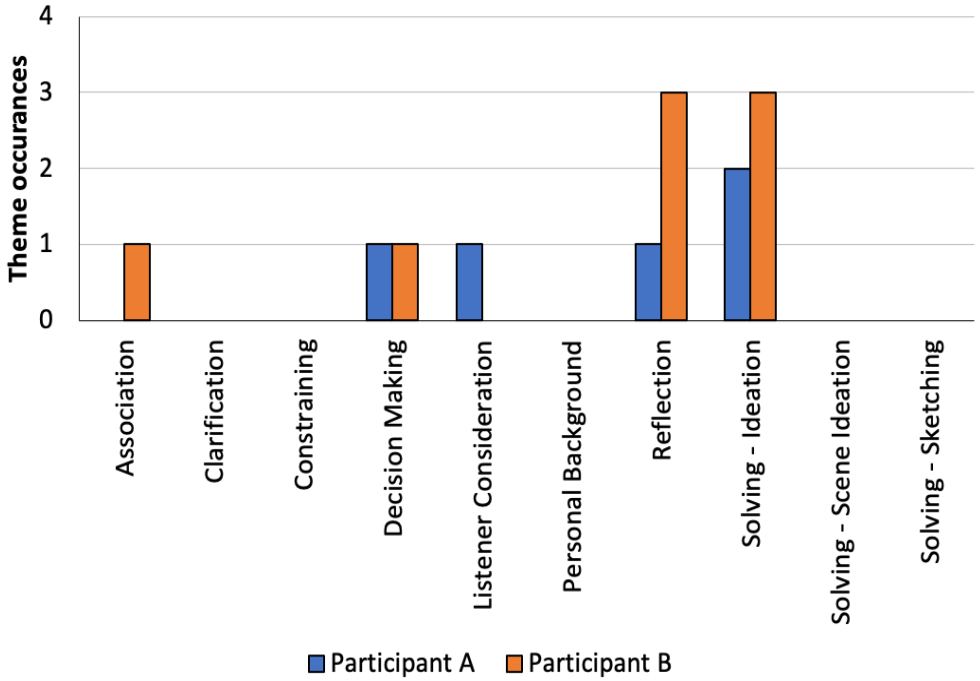

Figure 5. The different coding themes identified for Brief 3

B indicated that changes would have to be made so that the sounds could cut through to the wearer, since the sound of filtered noise and wind are similar.

We asked participants if their sound design might change if the wearer of the coat was a dog. Again, there was no change to the sound design from Participant A, although he added the sounds of a dog to his auditory scene. Participant B focused on the hearing range of dogs, adjusting the sounds accordingly. This difference in approach and interpretation can be seen clearly in the creative process´ themes identified in Figure 5.

When asked what-if the coat is being worn in the year 2200, both participants imagined that the coat may have additional functionality. In addition, Participant B changed the sounds generated to a voice like Siri singing to the wearer and Morse code type of sounds. The final what-if question was how they would differentiate between a standard coat and a luxury one. Participant A stated that sounds from the standard coat would include commercials, but the luxury item would not (although this was proposed in a quite jokingly way). For Participant B it was important that the sounds from the luxury item would be customisable by the wearer.

5. Discussion

From the results of the first part of the study, we find that there are some interesting overlaps, as well as differences, between the participants. Participant A did not discuss the need to gauge requirements for his role at the start of every project, and we hypothesise that this might be because he works primarily with one type of media, within an organisation that is clearly structured, and because he does not often refer to his work as

sound design. We posit that this could be a concern common among independent sound designers, who work across a number of different media and who face many different requirements.

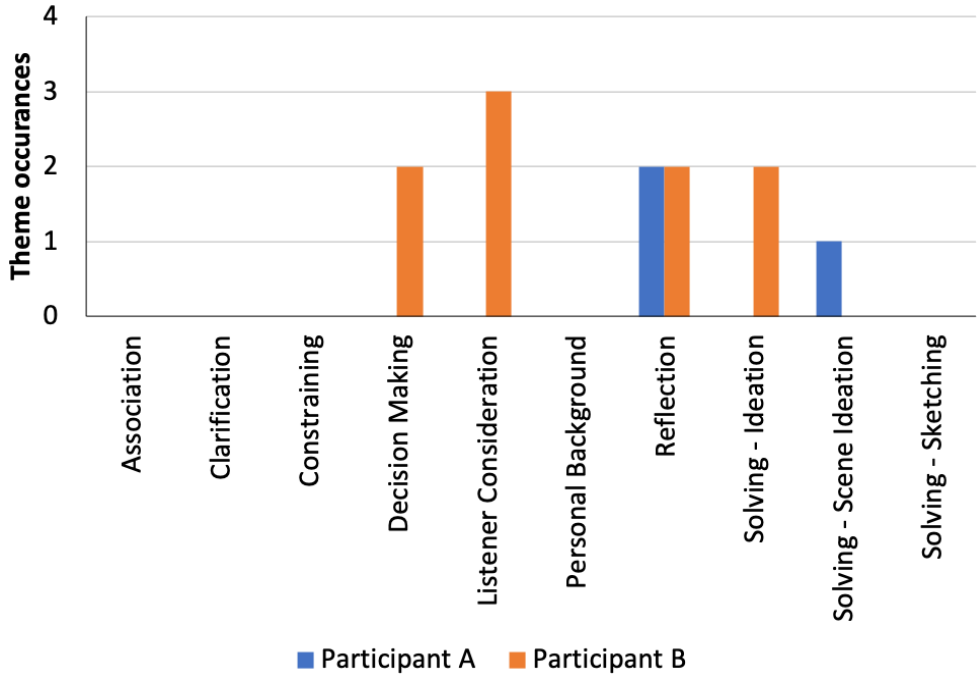

Figure 6. The different coding themes identified for the sound when a coat that communicates the air quality is worn by a dog.

Some of the concerns are highly, but not exclusively, related to the media discussed (radio and film in this case). The absence of images in radio is what perhaps creates the need for a heightened attention to precision and clarity in what is communicated through sound, it also promotes sound as primary means to “give” a body to characters.

On the other hand, making use of the full scale and dynamic range possibilities provided by the medium, especially when the material is intimate and personal, can be particularly important for a sound designer working with film. Finally, two aspects seemed to overlap: both participants use sound to portray something invisible. In one case the silent presence of a character, and in the other “stillness” or the absence of activity.

Participant B spent 93 minutes on the briefs while Participant A spent 38 minutes. This is a large difference in time which cannot be accounted simply by the difference in personality and circumstances. We propose that the challenges Participant A encountered in tackling the briefs (he often said: "this is very difficult"), prevented him from pursuing his ideas for longer than he thought necessary. On the other hand, reflection might be quite suited to Participant B’s personality as she seemed at ease reflecting at length on her decisions and actions.

Despite these differences, the participants´ creative processes seemed to align as they progressed through the briefs. Figure 2 shows the different approaches to Brief 1, while

Figures 3 and 5 show more aligned approaches in Brief 2 and 3. It is possible that the participants reacted with different approaches to Brief 1 due to its unusual nature, and then quickly devised a more efficient and, interestingly, similar strategy for tackling Briefs 2 and 3. Overall, Participant A produced 17 unique ideas while progressing through the briefs, while Participant B produced 31.

When we look at the type of processes used by the two participants throughout all briefs (Figure 7), we can notice that Participant B is more concerned with clarifying the brief and understanding constraints than Participant A. This may be linked to her concern, about defining the role of the sound designer in each project. Participant B is also spending more time reflecting, ideating sounds, and sketching them. On the other hand, Participant A seems to be more concerned about scene ideation, i.e., about creating an overall context. This might be linked to the fact that this participant works with an audio-only medium.

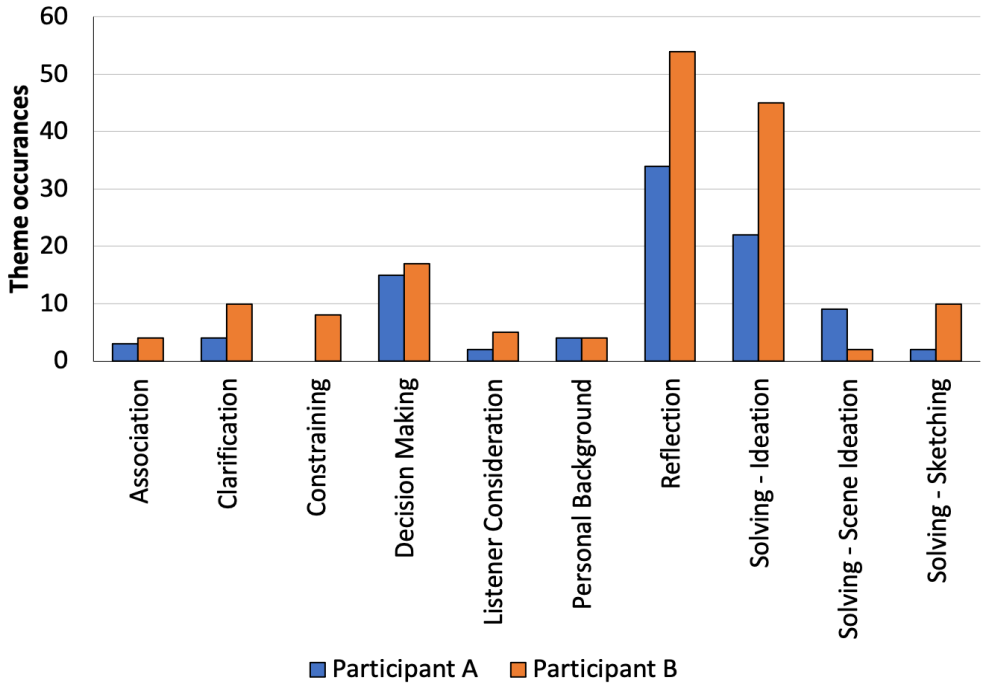

Figure 7. Overview of the coding themes used throughout the briefs' session.

6. Conclusion

We have described a novel method to investigate sound design practice. We have then presented and compared two case studies: (1) a sound designer who has worked for many years for a state radio broadcaster in Sweden; (2) a freelance sound designer working for film, TV, VR, and theatre among other media in the UK.

We have identified and discussed some differences in their approaches to sound design and the possible causes for these differences. We have also found similarities in their primary concerns and in their creative processes. We have also pointed out the role played by

personality differences and other factors, indicating potential limitations of this study and the need for it to be broadened.

Future work involves the analysis of further studies that we have conducted with different sound designers in order to expand this initial mapping of concerns, strategies and approaches, and develop a deeper understanding of the processes involved in sound design creative practice. This also includes comparisons of sound designers' ideation progression throughout the briefs, and the possibility of discerning different dimensions along which their ideas evolve - for example, whether sound provenance (recorded or synthesised), or mapping (literal or by association), or other aspects are being considered at this stage.

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