

Appendix I: Graphic Scores

Appendix I contains a brief contextual history of graphic scores (I.1), a description of how the function of the scores changed over time (I.2), and details on other aesthetic responses (I.3). Finally, I present all the research scores in their entirety, including keys and instructions to participants (Section I.4).

I.1 Brief historical context of graphic scores

With developments in Western art music during the twentieth century and a move away from traditional concepts of harmony, melody and rhythm, fresh demands were made on composers to create new notated forms of music (Evarts, 1968; Haus, 1983; Sauer, 2009). The work of abstract painters had a large influence on the development of graphic scores. Artists such as Kandinsky, Klee, and Delaunay sought to find ways of visually expressing musical forms (Guy *et al.*, 2007).

Teaching at the Bauhaus, an innovative German art school that combined arts and crafts, Klee explored the relationship between visual arts and music, developing a theory of form relating to musical structures and line, in particular the elements of rhythm and time. For example, as can be seen in the painting *Highway and By-ways*, Klee explores the relationship between colour and horizontal lines, echoing musical tones and scales (see Figure 1).



Figure 1: Highways and By-ways, 1929, Oil on canvas, 83.7 x 67.5 cm, Museum Ludwig in Cologne, Paul Klee (Wikimedia Commons, 2019).

Other artists explored the relationship between music and art: Delaunay used colour as a way of creating

visual form, comparing it to harmonic structures, while Kandinsky developed a theory of art highly related to music, with form in painting linked to melody and rhythm, and viewed colour as interchangeable with tone. In moving from directly referential motivic art to abstract work, he explored a series of paintings entitled *Improvisations*, stating they were ‘a largely spontaneous expression of inner character’ (Kandinsky, 1977, p.66).

Like paintings, graphic scores can be on a scale varying from referential semantic and motivic representations of sound to extremely abstract visual interpretations; for example, in the referential eighteen-stave score of Davidson’s *Never Love a Wild Thing*, graphics with arrows and lines are added to a traditional five-stave notation. Compare this to Raskin’s *Ginkgo*, created with plant seeds and leaves, which creates a much more abstract and perhaps visually aesthetic interpretation of sound (Sauer, 2009).

The technology of graphic scores continues to grow with contemporary artists and musicians such as Scottish printmaker **Ganter** and improvising saxophonist **MacDonald** (Edinburgh College of Art, 2019) and the concurrent improvisation research network (Reid School of Music, 2017). Through graphic scores these artists are continuing to explore the boundaries between visual and musical artistic expression, making music transcription and visualisation a living creative process. It is the vast variety and dual function of a visual language connected to sound and images as aesthetic objects which makes graphic scores unique, and specifically useful for the exploration of music improvisations within this project. In section 1.2 will now outline the function of the graphic scores created in the course of this project, and how they became a highly useful researcher reflexive tool.

1.2 Graphic Scores as a Reflexive Act

McCaffrey (2014) and Schenstead (2012) propose arts-based reflexivity in which the researcher utilises their own creative processes to reflect upon participant experiences. Gilbertson (2015) suggests a method of ‘embodied reflexive retrospection’ (p.487) in which participant music therapists recreated remembered piano playing hand positions. He then made plaster casts of the hands as a means of reflecting upon and understanding the participants’ experiences. I would like to suggest that the drawing in this study acted as a kind of ‘embodied reflexive retrospection’ (p.487) which evoked in the researcher remembered body positions, sensations and cognitive ‘musical intentions’ (Nijs and Coussement, *et al.*, 2012, p.238), both my own experiences and an interpretation of those of the participants I had initially intended to create the graphic scores using an adapted version of Bergstrøm-Nielsen’s (2010) graphic score method, with roots in Klee’s (1953) concept of ‘taking a line for a walk’ (p.16). In Klee’s

model a single line is continuously drawn without breaks, and then layered to create shapes and visual forms. In this study I planned to draw a continuous mark for each line of music, and build up the process by layering further graphics, colours and textures (see Section 3.14). Instead, because of the diversity and complexity of the music, I added a preparatory free drawing stage. This involved listening to the recording of the participant's and researcher's music through twice, accompanied by completely free mark making. I then subjectively selected prominent features of the marks, which became graphics and shapes in reference to sounds (e.g., orange circles refer to the tambourine).

This process began with participant three (Oriole), since his music was particularly complex, and it was at this stage that I considered the visual responses needed to reflect the intricacy of the music. In this way many visual ideas were generated, resulting in a wide diversity of scores. The differences in the music were also

reflected in a varying amount of signposting, legends and timelines, with not all the scores including timelines or indications to meanings and sounds. Figures 2 and 3 illustrate the free drawings created in response to Starling's piano music, and Figure 4 is an extract from the score.

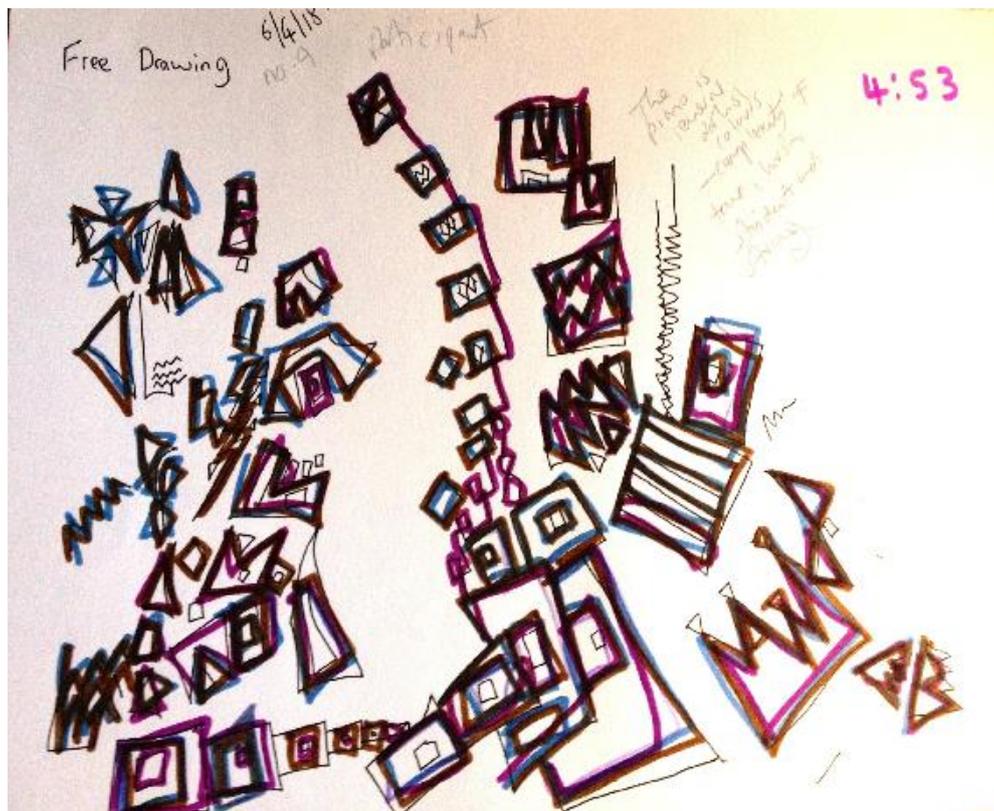


Figure 2: Starling's piano music – first free drawing, 6 April 2018, fibre pens. No timeline exists; 4:53 refers to the recording start point.

The heavy angular shapes in Figure 2 suggest the kinetic intensity and dark textures of the music, which, as Starling states, are reminiscent of the piano music of Bartók (1881–1945), with chromaticism, angular melodies and tonal ambiguity.

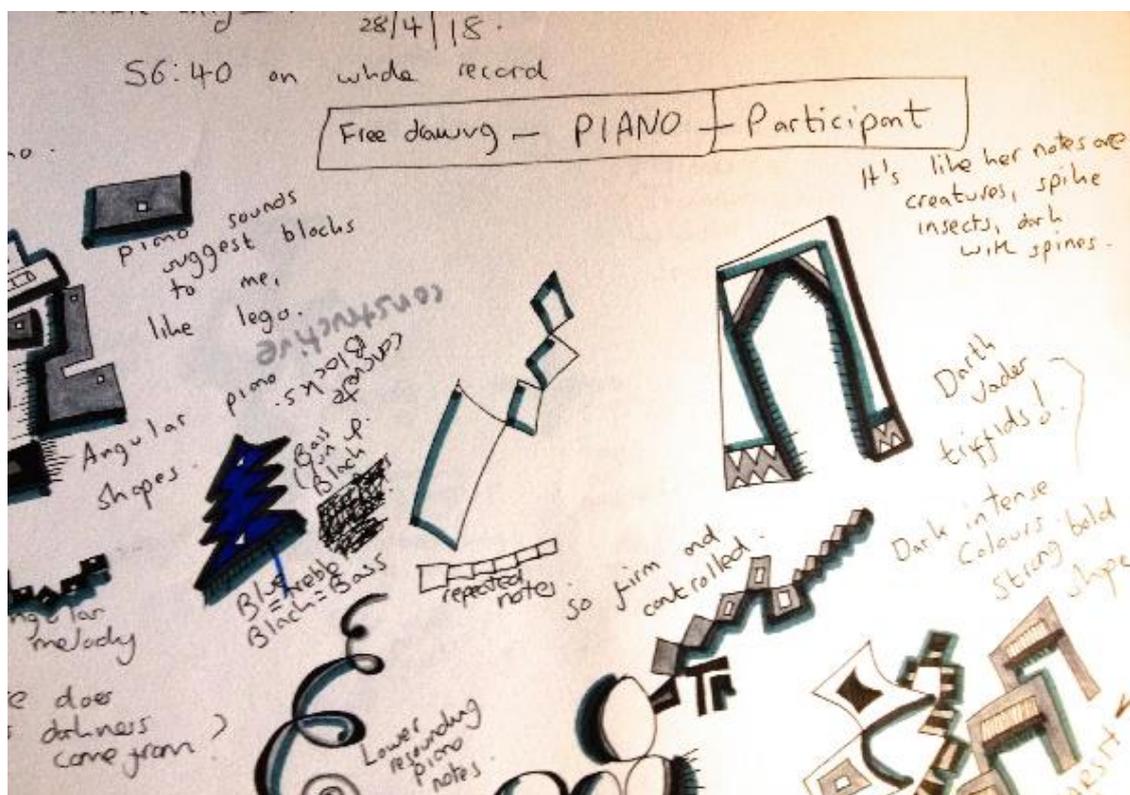


Figure 3: Starling's piano music – second drawing, 28 April 2018, fibre pens. No timeline exists; 56:40 refers to the recording start point.

In Figure 3 the shapes begin to have more definitive form; written references and a timeline are added.

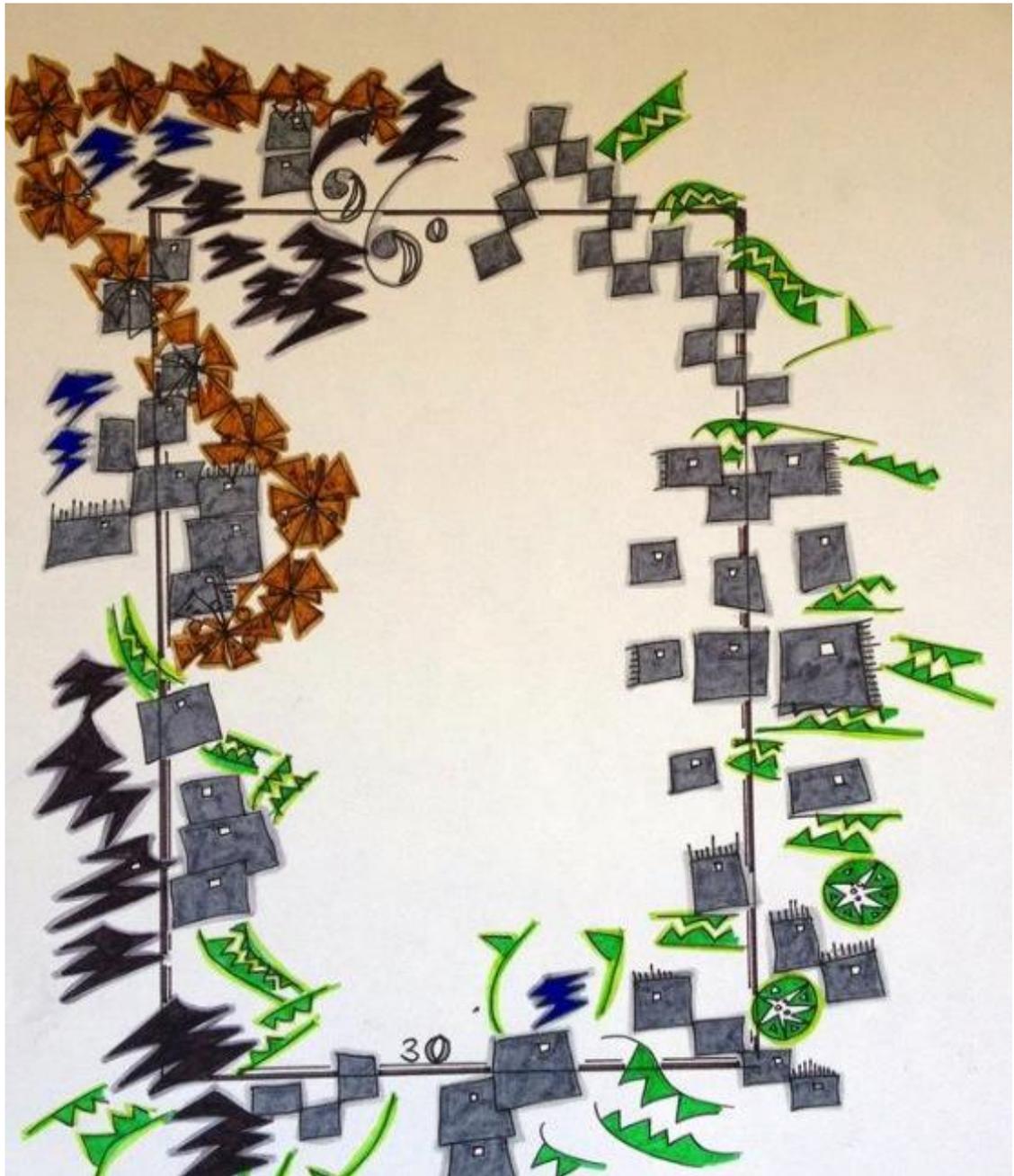


Figure 4: *Starling graphic score – minute four. The score reads clockwise; grey/blue shapes indicate Starling's piano music, green/brown shapes indicate my playing of the melodica and wooden clapper.*

The score in Figure 4 contains echoes of the free drawings, seen in Starling's piano shapes with angular dark and grey forms, suggesting blocks of sounds and

black jagged piano bass lines. My music is illustrated through green jagged lines referring to the melodica and brown organic shapes to signify the wooden clapper. Thus the three figures visually demonstrate the development from free drawing to a finished score extract.

Through this process, the act of drawing, undertaken over a period of eighteen months, became less about the original ideas of creating a visual transcription of the music or member checking, and more concerned with thinking about the participants' experiences and developing intense familiarity with the music. It became a reflective act of 'thinking through drawing' (Haire, 2019, personal discussion on thinking through improvisation in the arts). The artist Beuys (quoted in Temkin and Rose, 1993) describes drawing as a 'visual form of thinking' in which there is a 'description of the thought and incorporation of the senses' (p.113). Similarly, Zegher (2003) understands drawing as a physical act created by thought. Other artists have considered drawing as a

means to document ideas (Kingston, 2001) and a 'place of freedom, experiment and play' (Gormley quoted in Marr, 2013, p.19). The drawings, created through the combined act of listening and mark making, result in my cognitive, sensory and physical reflection on the participant's experiences. Repeated listening and mark making created crucial time within the research process to remember and reflect on the musical encounter. Importantly, I experienced the remembering both within my body, such as in the sensation of holding an instrument, and in mind, for example through recalling sequences of notes or musical decision making. The process created a kind of time interplay as I was able both to hear the music in the present moment and remember it as a past event.

Reflexivity is crucial for a heightened awareness of the relationship between researcher and participant, and can potentially uncover unconscious processes that may influence the creation of the data (Finlay, 2002;

Etherington, 2004; Holloway and Jefferson, 2000). This correlates with the Freudian idea of 'automatic drawing' revealing unconscious thoughts of patients, or the later use of 'spontaneous expression' (Malchiodi, 2012, p.63) in psychoanalytic art therapy to uncover unconscious processes and meanings held by the client (Maclagen, 2014). This had implications when I undertook the music analysis. It followed that the process of drawing to the music had enabled a deeper reflection and emphasis on the musical research relationship with a consideration of the transference and countertransference (see Glossary). Streeter (1999a) highlights that clinical improvisation reveals unconscious processes, as the therapist responds to the client with their own emotions and projections (countertransference) and/or experiences the client's emotions and projections (transference), and it is this which builds a resonant understanding of the client. It is also important to note that the exact same process can take place from the point of view of the client, as they respond to the therapist. Within the research

encounters, although not a therapeutic context, I was able to draw on my psychodynamic training as a music therapist. The participants experience. Thus, the act of drawing elicited the remembering of unconscious processes which took place in the research encounter, which I experience in my body and mind, and gave a greater understanding of the participants' experience.

A vivid example of this is found in the case of **Starling**: when listening to the music, drawing and undertaking analysis I often experienced headaches and tension.

Although I am prone to headaches myself, it seemed to me that there was an element of transference relationship as I became more deeply involved with her music (she refers to tension in her hands and headaches related to performance). I used this embodied reflexive response (Gilbertson, 2015) to further understand her experience and wonder what it might be like for **Starling** to regularly experience tension as part of musical performances. This is illustrated in Figures 5 and 6,

showing minute one of the score accompanied by written reflections on the act of drawing.



Figure 5: Starling graphic score – minute one. The score reads clockwise: grey/blue shapes indicate Starling's piano music; green and blue indicate my playing of the melodica and thunder drum.

It has taken me a long time to draw this score – and it is hard to listen to, very dark and almost angry – I feel exhausted listening to it.

Reflective words: tension, headaches, exhaustion, angry.

Figure 6: personal reflections on listening to Starling's music and drawing a score, July 2018.

Similarly, becoming immersed in the music of Curlew I often experienced feelings of sadness, with the accompanying need for increased musical playfulness. I acknowledged that this urge to play was part of my personal characteristics as a musician and researcher, but also intensely related to the sadness Curlew was feeling at the time of the interview. See figures 7 and 8.

Minutes 00:00– 2:22

Participant plays piano (brown and grey graphics) and researcher plays bass (blue and green graphics).



Figure 7: *Curlew* – graphic score, minute one. The score reads from left to right; no timeline is shown.

Reflective words:

Sadness, quiet, loss, searching for the playfulness.

Figure 8: *Personal reflections on listening to Curlew's music and drawing a score, August 2018.*

A further example is found in the music of **Swallow**. Whilst playing with **Swallow** I had a strong urge to disrupt her tonal music and draw her into atonality. Through repeated listenings and drawings I considered that this was part of the transferential and musical research relationship. This was later confirmed in the music analysis (Section 7.4.7c) which revealed the tension in **Swallow's** music between tonality and atonality, strongly suggesting that I was responding to this tautness, rather than my own need to play atonally. An extract from **Swallow's** score, together with accompanying reflective words is shown in Figures 9 and 10.

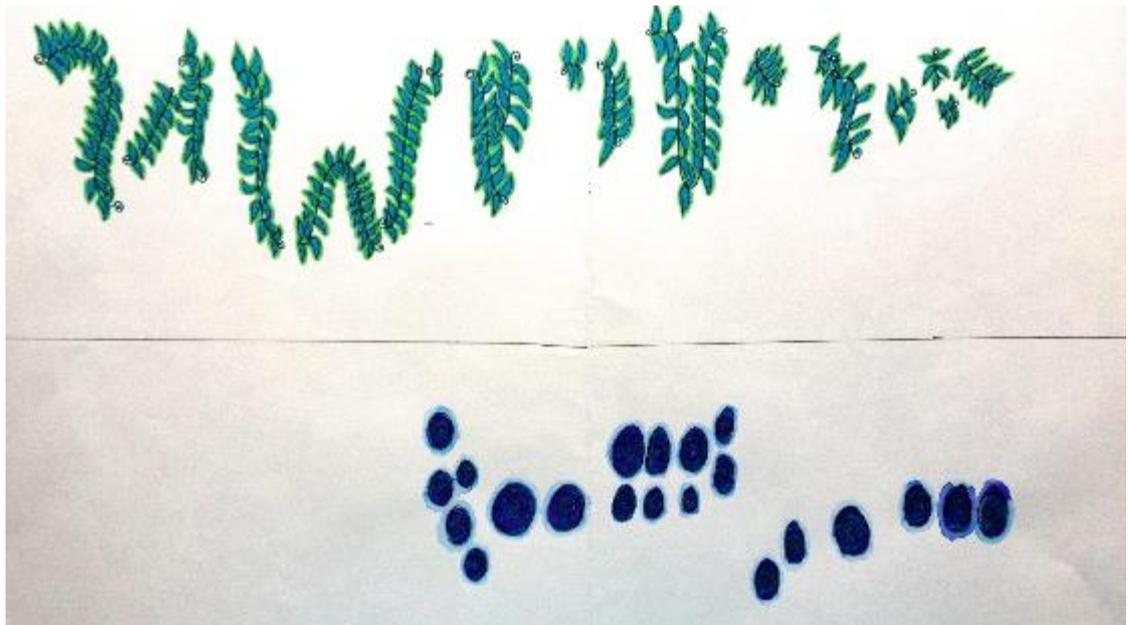


Figure 9: *Swallow – graphic score, minute one; the score reads from left to right. Swallow's music on lap harp is depicted in the top line with green leaf shapes; my music on acoustic bass is shown on the bottom line through purple circles.*

Reflexive words:

Pushing at tonality, tension, breaking out the box, breaking away from boundaries.

Figure 10: *Personal reflections on the act of listening to Swallow's music and drawing a score, July 2016.*

Therefore, it can be seen that what emerged through the creation of the graphic scores followed by music analysis was a focus on the musical research relationship, and how the interpersonal dynamics uncovered further understanding of the participants' experiences of learning to improvise. This is later explored and emphasised in the

music analysis (Section 7.6.1). These illuminations would not have been so distinct, or possible, without the first stage of free drawing to the music.

I.3 The participants responses to the scores.

Ten graphic scores were created in response to the improvised music in the interviews. The original function of the scores was to create member checking and elicit further data. However, this aspect of the study produced unexpected responses, since only three participants made comments on their experiences of learning to improvise. Other participants either gave no comment at all, or remarked on the ease of readability or aesthetic attributes. This was possibly due to a lack of time, or because of the way the invitation to *make further comments on the scores* was worded. The lack of comments and contributions about the aesthetic attributes was unanticipated within the study.

Because of the complex nature of the music, rather than Bergstrøm–Nielsen’s (2010) simple line method, I employed an initial free drawing stage with further reworked graphics. This had commonalities with spontaneous techniques used in art therapy to reveal unconscious processes (Malchiodi, 2012; Maclagen, 2014). The free drawing enabled *embodied reflexive retrospection* (Gilbertson, 2015) with deeper understanding of unconscious processes, the musical research relationship and participants’ experience. This knowledge was then applied to the findings generated through the IPA and music analysis, brought together in a synthesis in Chapter 9.

The original impetus behind the scores was twofold: to utilise a member checking process (related to the musical aspect of the encounter) and to elicit further data on experiences of learning to improvise. This involved sending the scores, with music recordings, back to the participants and inviting them to listen and write any

further comments. In this way the scores were intended to act as a visual map of the music. However, only three individuals added comments on the music or on their experiences of learning to improvise, with others either making no remarks at all, or discussing the aesthetic and ease of reading attributes of the drawings – responding to the graphics rather than the music.

This lack of comments related to the music and learning experiences may have been due to three reasons: time pressure, the participant felt it was not necessary to add anything further, or the question I asked was too open and vaguely worded; verbally I invited the participants' to 'make further comments on the scores'. The score-reading instruction was given as 'add any further thoughts, reflections or comments that occur to you'. With retrospect it may have been more useful to have asked a directive question such as: 'make further comments on the music or your experience of learning to

improvise, writing on the scores'. A summary of participants' responses is shown in Table 1.

Table 1: Participants' comments on graphic scores

Dunnock	Experiences of learning
Linnet	Experiences of learning
Oriole	Experiences of learning/Score reading/Aesthetic
Bullfinch	No comments
Wren	No comments
Curlew	No comments
Swallow	Score reading/Aesthetic
Goldfinch	Score reading/Aesthetic
Starling	Score reading/Aesthetic
Chaffinch	No comments

Aesthetic and reading comments focused on how shapes related to sounds, spacing, images evoked (such as birds and dragons) and missing musical events. An example of an aesthetic and reading comment is shown in Figure 11.

Top line: Participant lap harp

Bottom line: Researcher acoustic bass guitar

Minute one:



Participant comment:

Love the harp's descending figure and note its link with nature whilst the bass figures are a warm purple colour, adding warmth to the sound. Felt the bass needed to begin earlier in the score ... 'on my own', which I didn't feel whilst playing!

Figure 11: *Swallow, minute one – graphic score and comment.*

In Figure 11 the music and score elicit imagery; Swallow comments that the *opening descending* motif on lap harp is *linked with nature*, and the bass shapes are *warm*.

Here I had imagined and drawn the lap harp sounds as vine leaves, and Swallow observes and *loves it*.

Comments such as these on the aesthetics and reading of the scores were an unintentional aspect of the study, not anticipated within the original design.

Appendix I.4: Graphic Scores

Introduction

Appendix I displays ten graphic scores created in response to the improvisations. The scores are portrayed as accurately as possible in accordance with the original presentation to participants. Comments made by the participants are shown below each relevant section of the scores. Three fonts are utilised, *dyslexie* (2019) in which the body of the thesis is written, and *courier* and *century*, used for the score instructions. Scores one, eight, nine and ten include some signposting with keys, the remaining scores were deliberately left to a more open interpretation. This was to avoid overly influencing the participants' responses to the scores. The scores are presented in numerical order. Some pages have been left blank to allow practical ease of reading.

1.4.1 Instructions

The following listening instructions were given to all the participants:

Instructions for listening to music with score.

1. Listen to the music.
2. Familiarise yourself with the score.
3. Listen to the music again looking at the score.
4. Listen to the music for a third time looking at the score.
5. As you listen the third time either write directly underneath the score or insert comments (under the word insert menu). Add any thoughts, reflections, ideas or comments that occur to you.

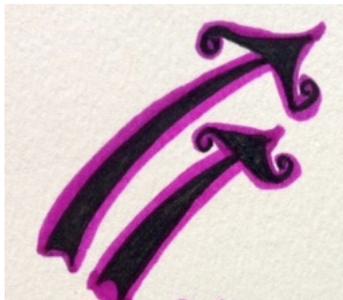
Thank you!

1.4.2 Dunnock – Graphic Score and Key

The score created in response to the music with Dunnock includes the following key. Participant's music is shown in green and researcher's in purple.

Key

Purple = Guitar / participant
Green = Melodica / researcher

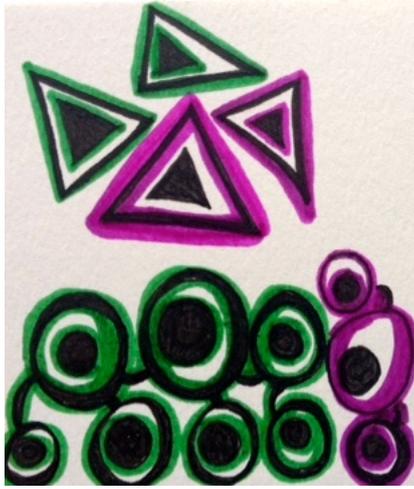


Glissando



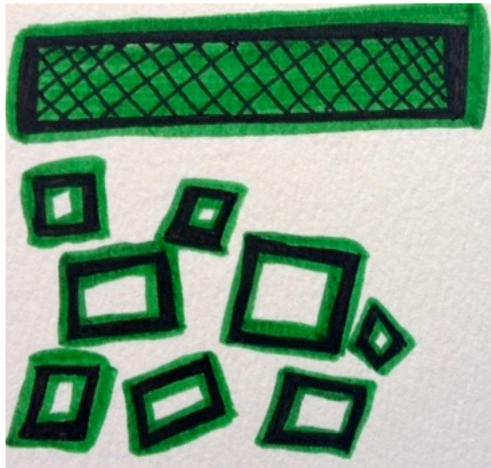
Arpeggio

Riff
↓



← Short Melodic Notes

Sustained Melodic low Notes and Chords



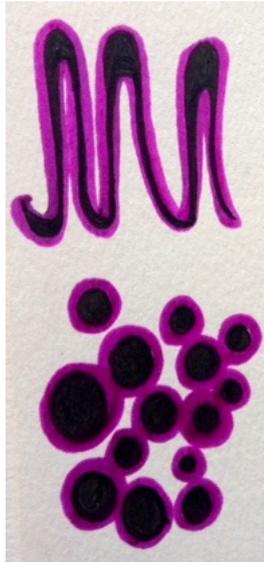
← Short Chords

Sustained High Notes



← Tremolo

Melodic Fragments



←staccato

Bass notes

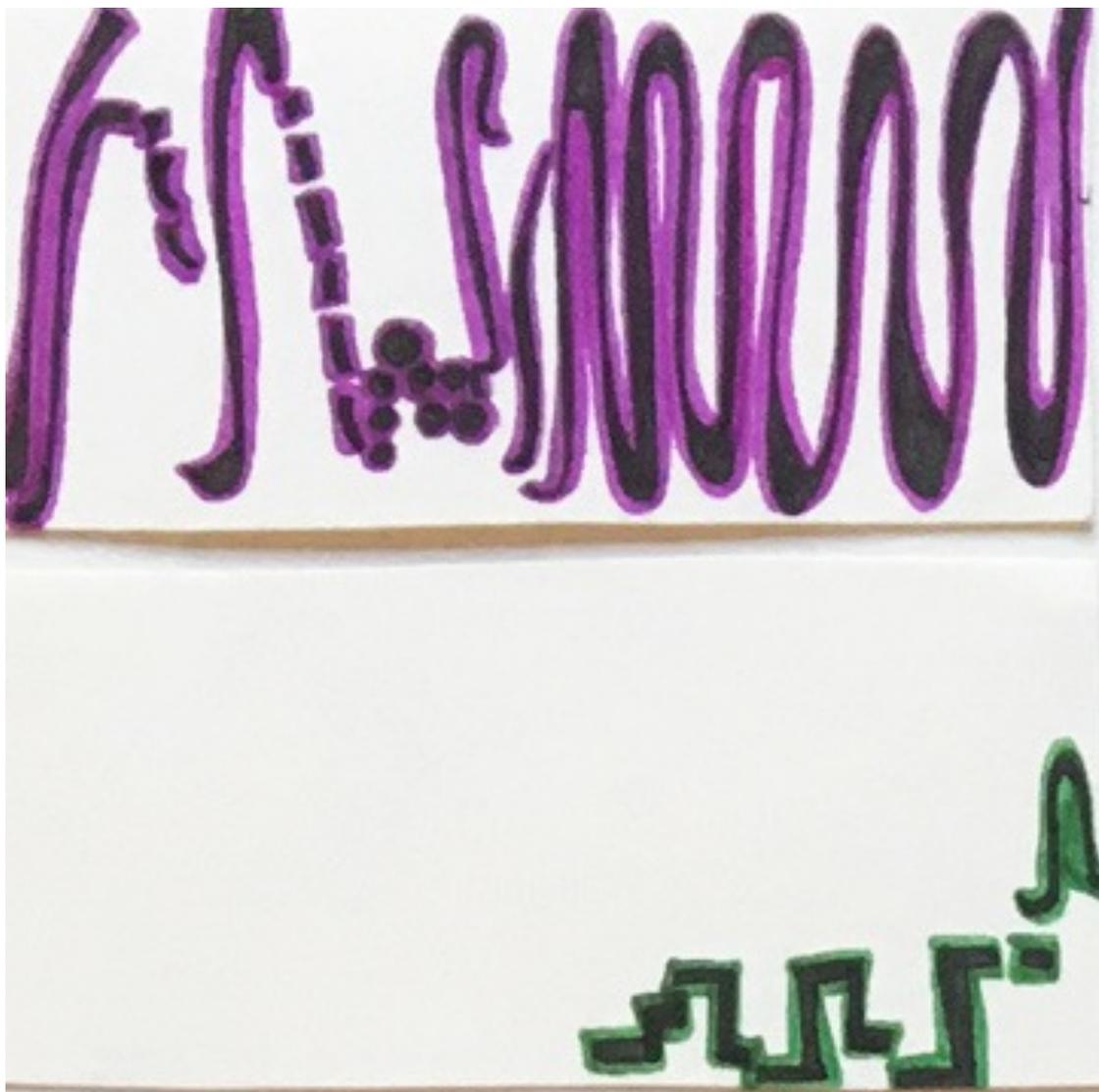


←Continuous Guitar Melody

Graphic Score Improvisation Dunnock

The score reads from left to right, shown in one minute blocks, green shapes indicate the researchers music and purple the participants.

Minute One



Participant comment:

This first section reminded me of how my guitar teacher and I would begin a piece together. We would have a colla voce style/improvisatory opening and then move into the piece.

Minute Two



Participant comment:

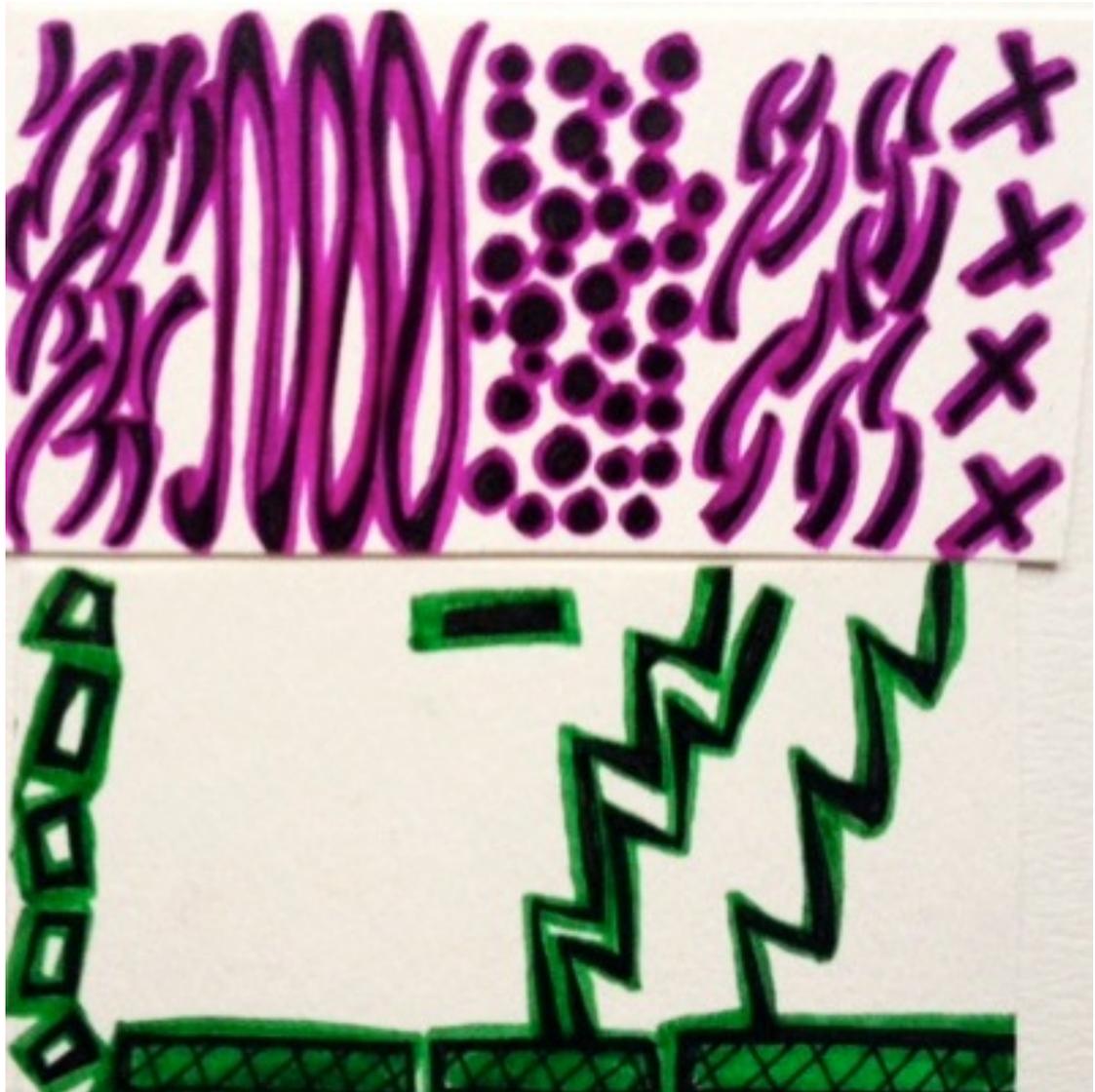
Listening back to the beginning of this section the music felt hopeful and then turned slightly disjointed, it felt like I couldn't hold onto the hopefully feeling.

Minute Three



No comment

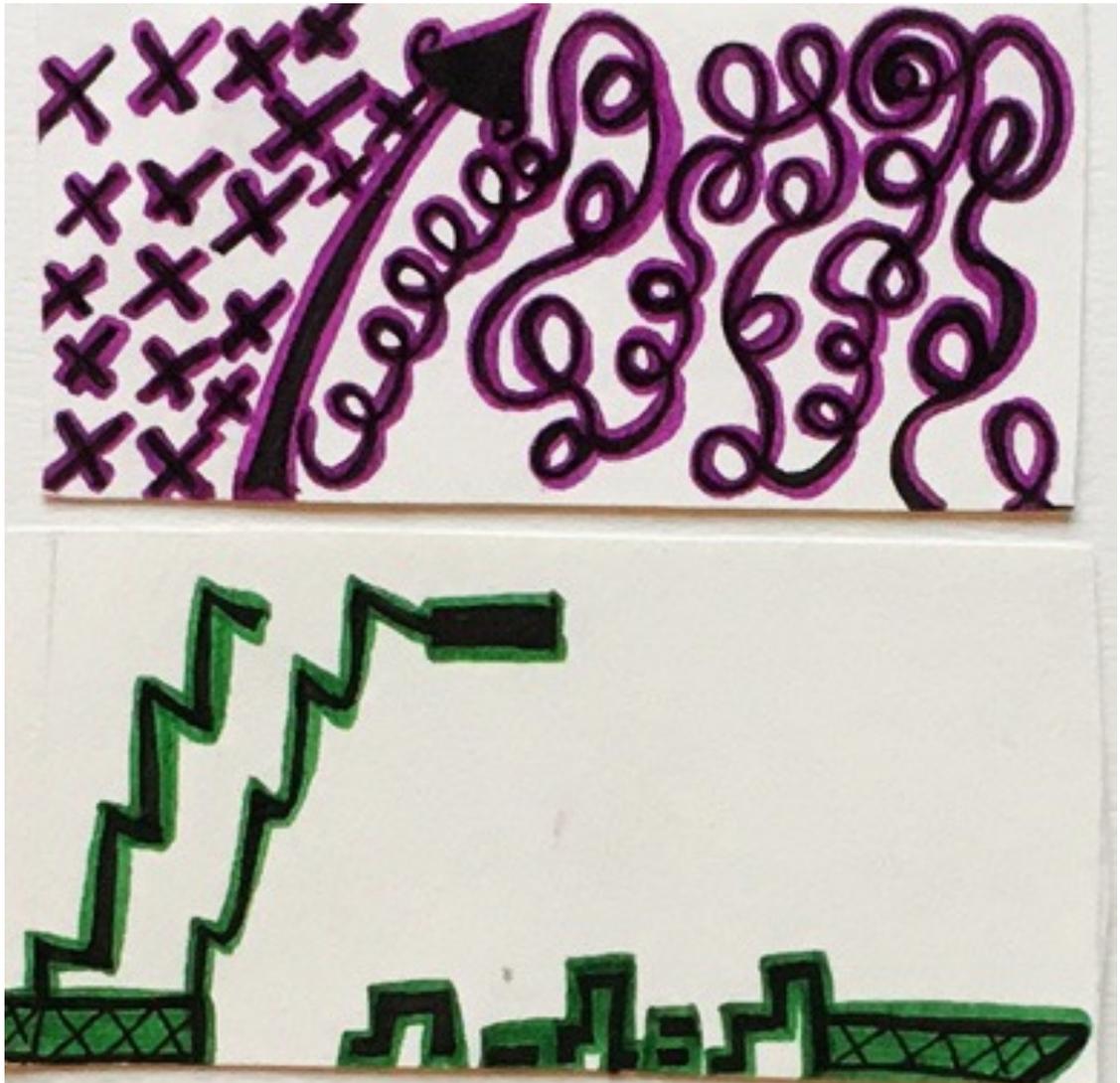
Minute Four



Participant comment:

The pace seems to have slowed and the music feels more reflective

Minute Five



Participant comment:

The discordant passages feel like a rebellion against the harmonically concordant passages. The concordance seems to always be followed by discordance. Possibly linking to when we discussed technicality and my rebellion against my dad and that 'not good enough' feeling

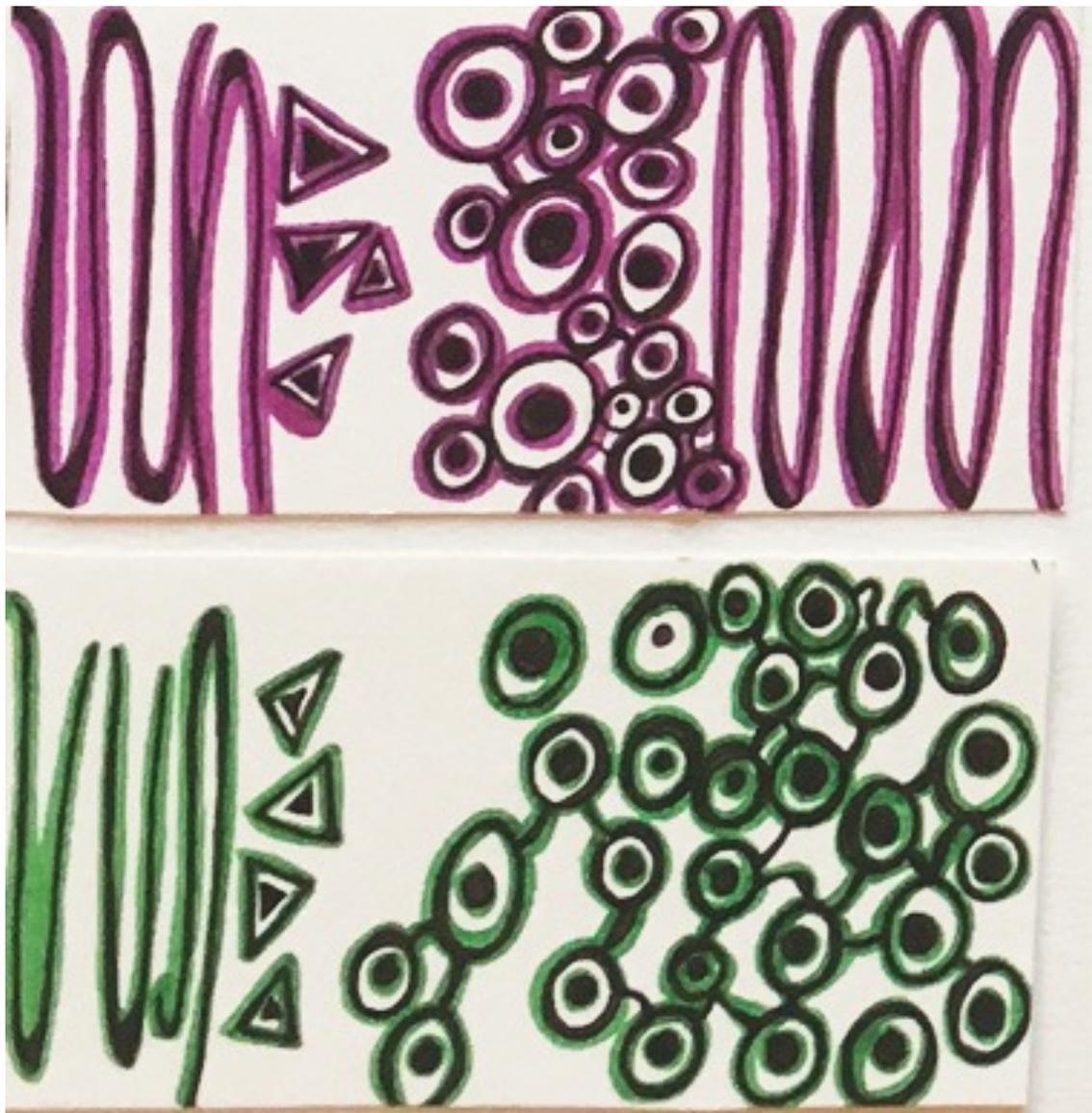
Minute Six



Participant comment:

The little figure at 6:10 sounds like the standard 'St Thomas' one of the first standards I learned with my teacher! That's quite spooky!

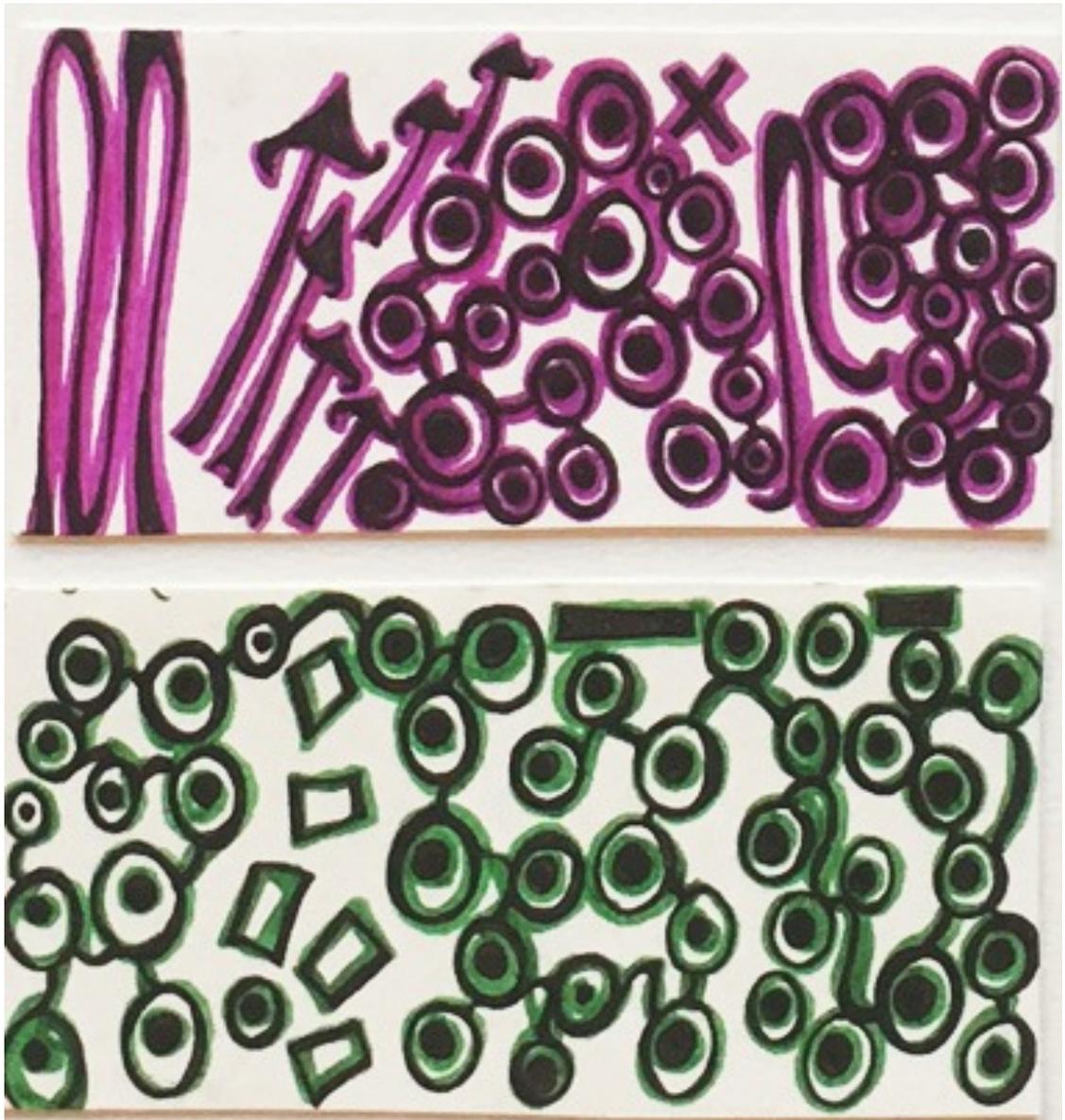
Minute Seven



Participant comment:

I really enjoy the staccato passage 6:30-7. The music feels very coherent to me and it sounds as if we are bouncing off each other. The music throughout min 7 really appeals to me. I am not sure why? the best I can describe it is that it feels like I'm playing with a good friend and the music just clicks.

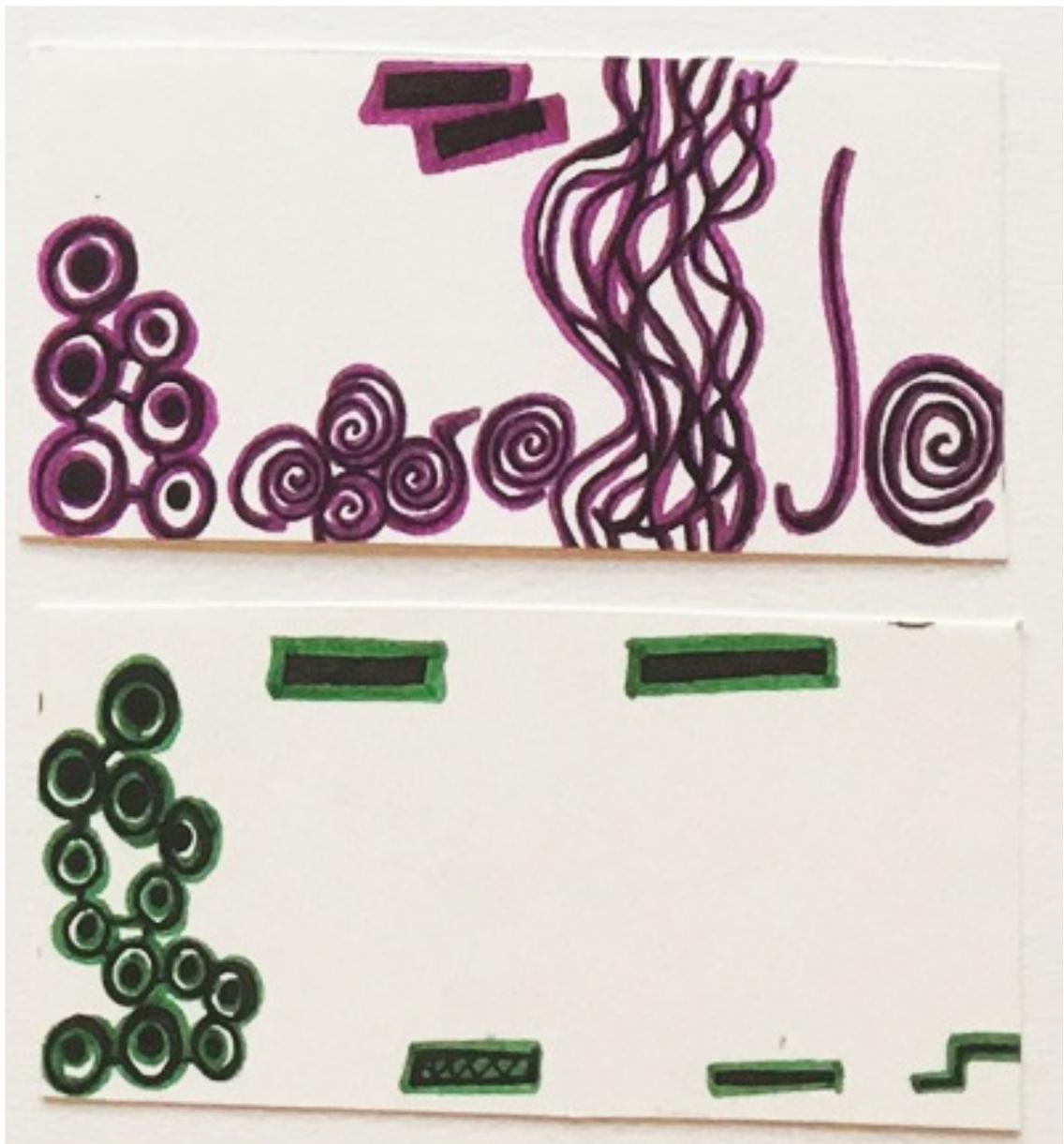
Minute Eight



Participant comment:

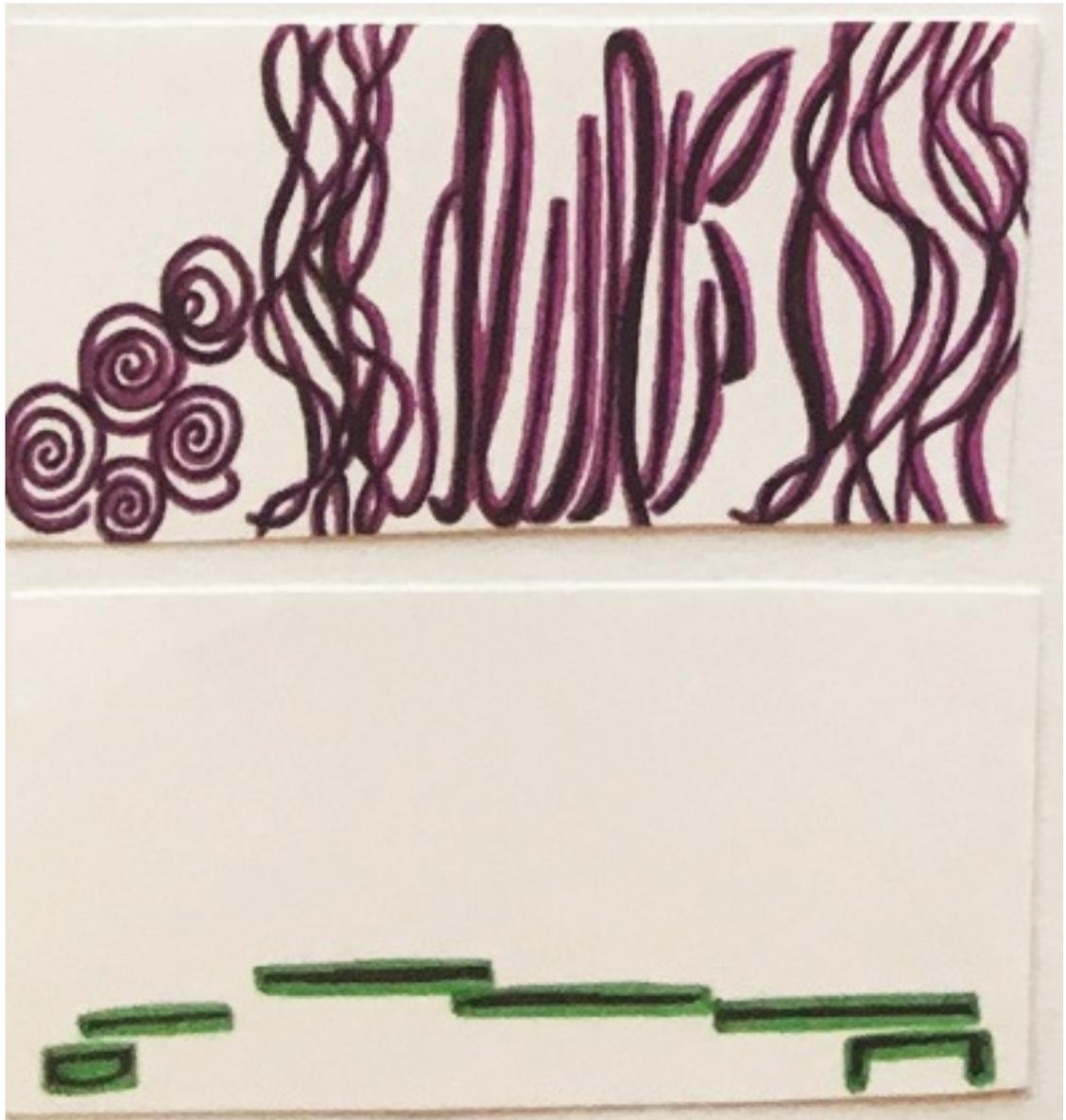
The music between min 8, 9 and 10 just sounds reflective and possibly a bit morose and sad. Interestingly I did not choice another instrument to play. Having spoken so much about how the guitar and improvisation is a bit part of my identity, I remember not wanting to play anything else. I left feeling very close to the guitar and my own music

Minute Nine



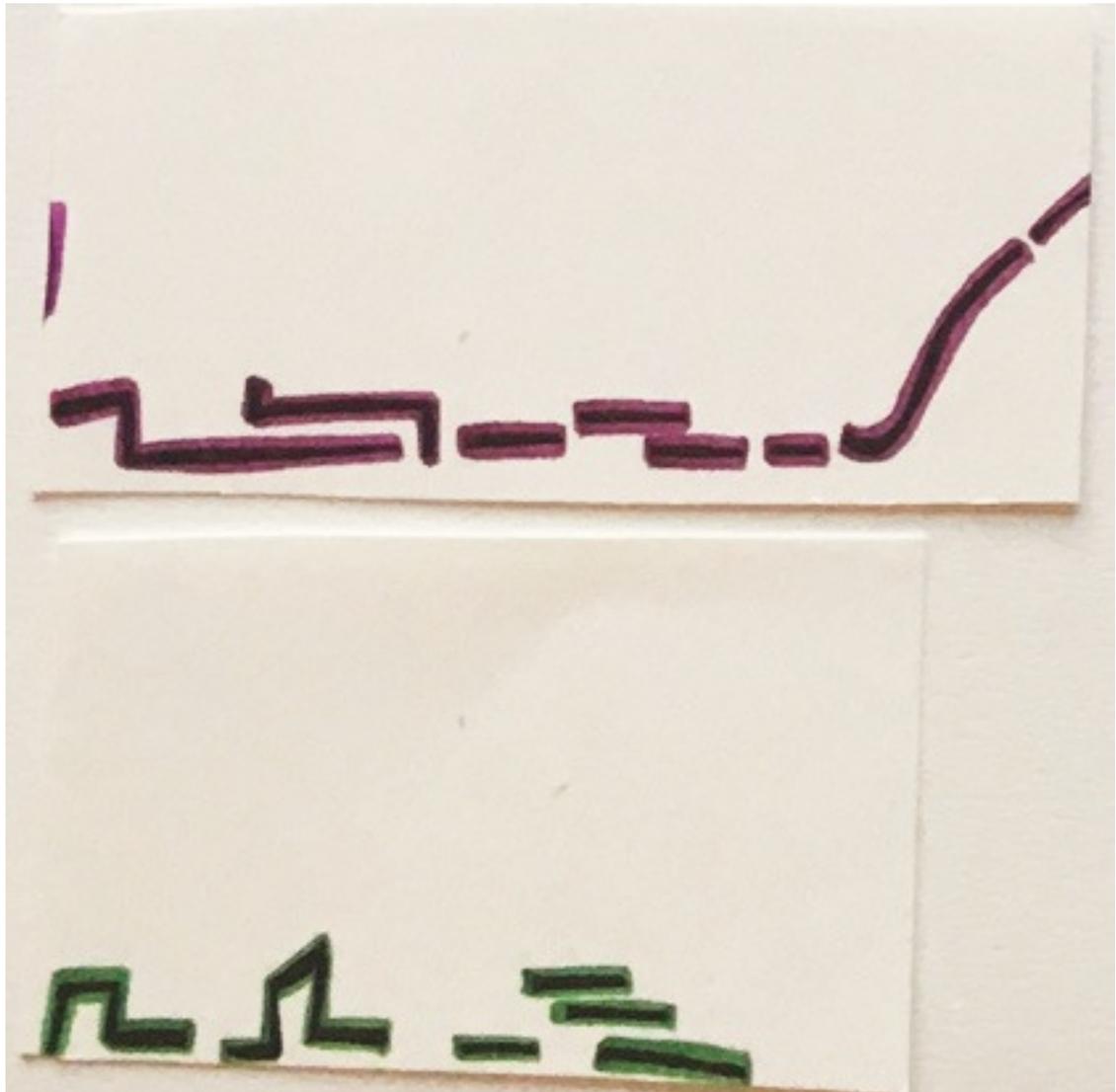
No comment

Minute Ten



No comment

Minute Eleven



No comment

1.4.3 Linnet – Graphic Score

The score created in response to the music with Linnet, is divided into twelve instrumental sections. Each section reads from left to right. The participant's music is displayed on the top line, and researchers on the bottom. No key is provided.

Graphic Score Linnet



Participant = blue shapes, ocean drum

Researcher = green shapes, melodica

Participant comment:

It seemed I was exploring the ocean drum as I would in group improvisations on the training. It started off sounding quite reflective. It felt as though I was reflecting on the difficult emotional experiences, I had experienced during improvisation, vulnerability, fear, sadness, change, loss. When I used the ocean drum more percussively, this felt like a cathartic release of these emotions. The melodica felt really supportive and as though someone was joining me and/or holding me on that journey of reflection and release.



Participant = orange shapes, glockenspiel

Researcher = green shapes, melodica

Participant comment:

This sounded more playful. At times I wasn't sure whether I was leading, or Becky was. It often sounded like she elaborated on what I was playing. The melodica was very enticing, and I could feel myself getting drawn into Becky's music.



Participant = pink lines, shaker

Researcher = orange and green shapes, tambourine with beater and melodica

No comment



Participant = orange shapes, tambourine

Researcher = green shapes, melodica

Participant comment:

I felt very comfortable at this point. As if I had exposed vulnerable parts of myself and they had been accepted by Becky, which in turn allowed me to become more present in our music making. It felt like I started to show more of myself in this section of the improvisation, to give more of myself. I began to feel a bit more daring and confident. I can see a parallel here in how I began to eventually feel in group improvisations.

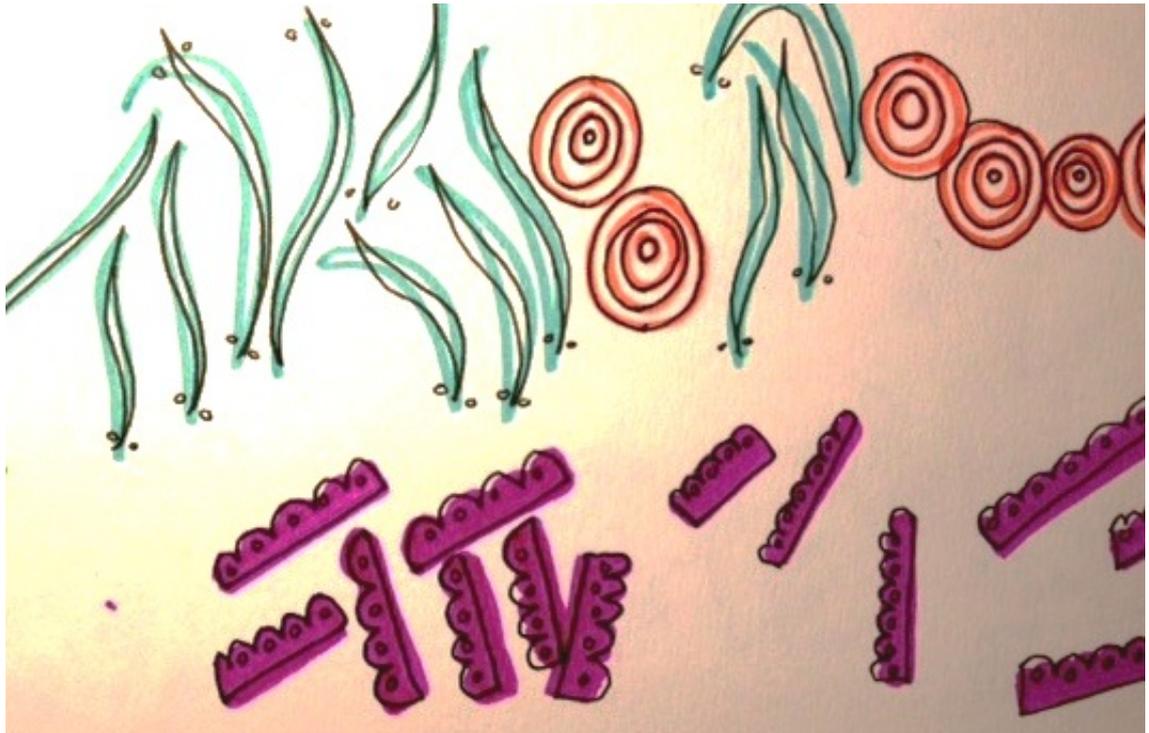


Participant = silence

Researcher = green shapes, melodica tapping on keys

Participant comment:

This felt like a moment of transition between two parts of the improvisation that seemed to have rather distinct qualities.

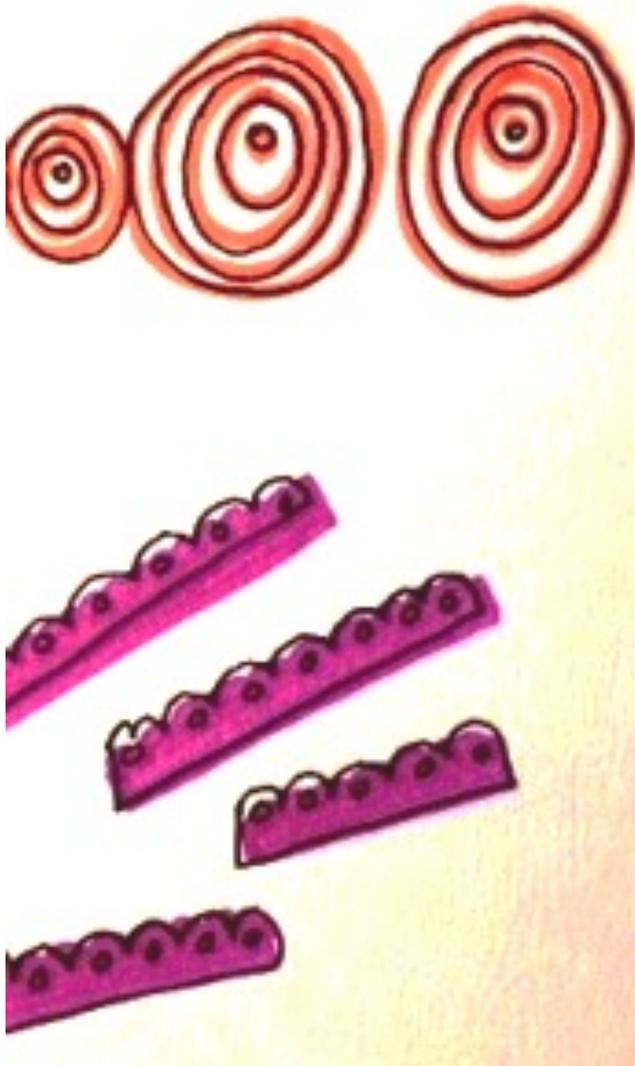


Participant = green and orange shapes, snake shakers and party hooters

Researcher = pink shapes, recorder

Participant comment:

I began to feel a bit more playful in this section.

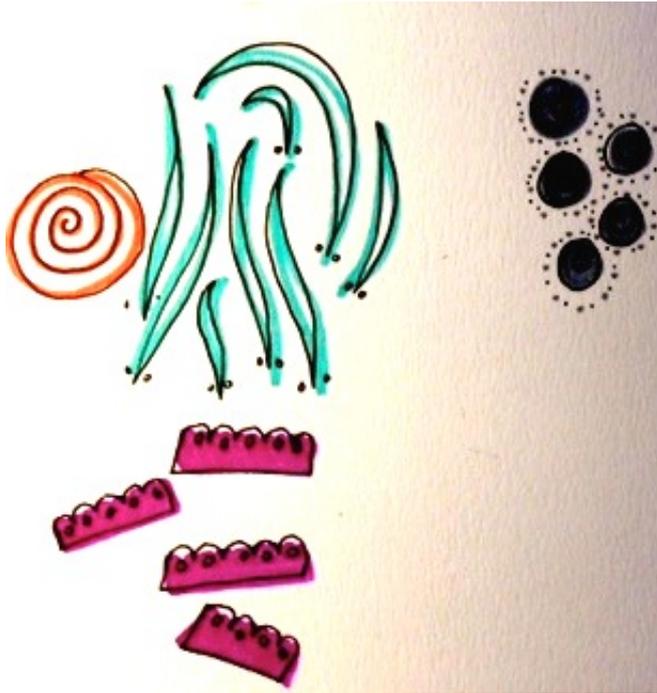


Participant = orange circles, party hooters

Researcher = pink shapes, recorder

Participant comment:

I wonder whether I felt the need to be a bit playful and silly after talking about quite heavy stuff. I felt like I wanted to feel lighter. This section felt very free.



Participant = orange circles, green shapes and black dots,
party hooters, snake shakers, fingers tapping on drum
Researcher = pink lines, recorder

Participant comment:

Still continuing to express a playful and silly side of myself. This section felt more free and aimless.

(Silence)



Participant = brown shapes, claves

Researcher = grey dots and orange squares, drum and tambourine

Participant comment:

I think I felt the need for some percussion – percussion instruments always make me feel more grounded and steady.

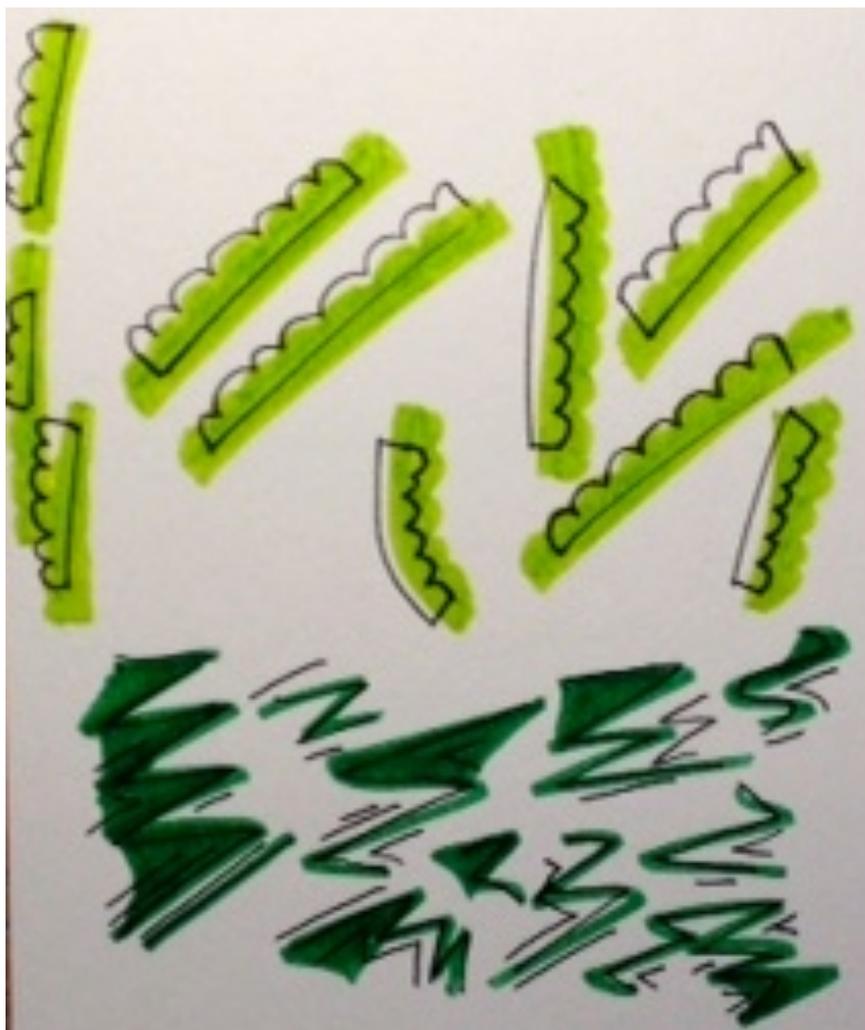


Participant = purple shapes, bells

Researcher = orange squares and yellow shapes, tambourine, sweet-corn shaker

Participant comment:

This felt like a period of change, from steadiness and structure to more freeness.



Participant = green lines, tin whistle

Researcher = dark green shapes, melodica

Participant comment:

I think I was feeling experimental in this section of the improvisation. I haven't played much on a tin whistle before, so it felt like I was seeing what sounds I could make. Whilst playing this instrument it felt like I was expressing pent up energy. It almost sounded like a form of 'acceptable' screaming. It sounded as though the melodica was coming underneath the tin whistle and supporting it. The melodica was very grounding. There was a playful interaction between us where Becky was matching me, which felt and sounded very nice. It felt like I was really influencing the direction the music was going to take. It felt very empowering.



Participant = blue shapes, ocean drum

Researcher = green shapes, melodica

Participant comment:

I remember picking the ocean drum back up as I knew I wanted to stop soon, and I wanted it to be the last instrument I played before ending. The ocean drum represents a safe instrument that I can always return to. The ocean drum seems to have marked the beginning and end of the improvisation; it is my safe base that I set off from and returned to after embarking on an improvisation which felt like a journey. It felt like a journey that was reflecting part of my journey of learning to improvise. The improvisation seems to have encapsulated the varied emotional experiences I have had during improvisations.

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1.4.4 Oriole – Graphic Score

The third score, created in response to the music with Oriole, has no key attached, but includes the following reading instructions:

**PhD Graphic Score three Oriole
Improvisation Piano and Electric Bass Guitar**

Instructions on how to read the score

- Each section of the score reads anti-clock wise from the bottom left hand corner to the top left hand corner.
- The drawings are a visual impression of the sounds and only some of the musical events (not all) have been transcribed.
- The drawings are a mixture of graphics and traditional notation.
- There are two drawings for each minute of music, one for the piano (participants music) and one for the researcher (electric bass).
- Please make your written comments in the spaces beneath the drawings.

Minute One Piano (Participant)



Participant comment:

- Opening chord – where did that come from?
- Why do I play so many fourths?!
- Solid bass on piano
- Like we're both exploring

Minute One Bass Guitar (Researcher)



Participant comment:

- Both exploring these open notes
- Bass guitar picking same root notes as piano
- Tentative

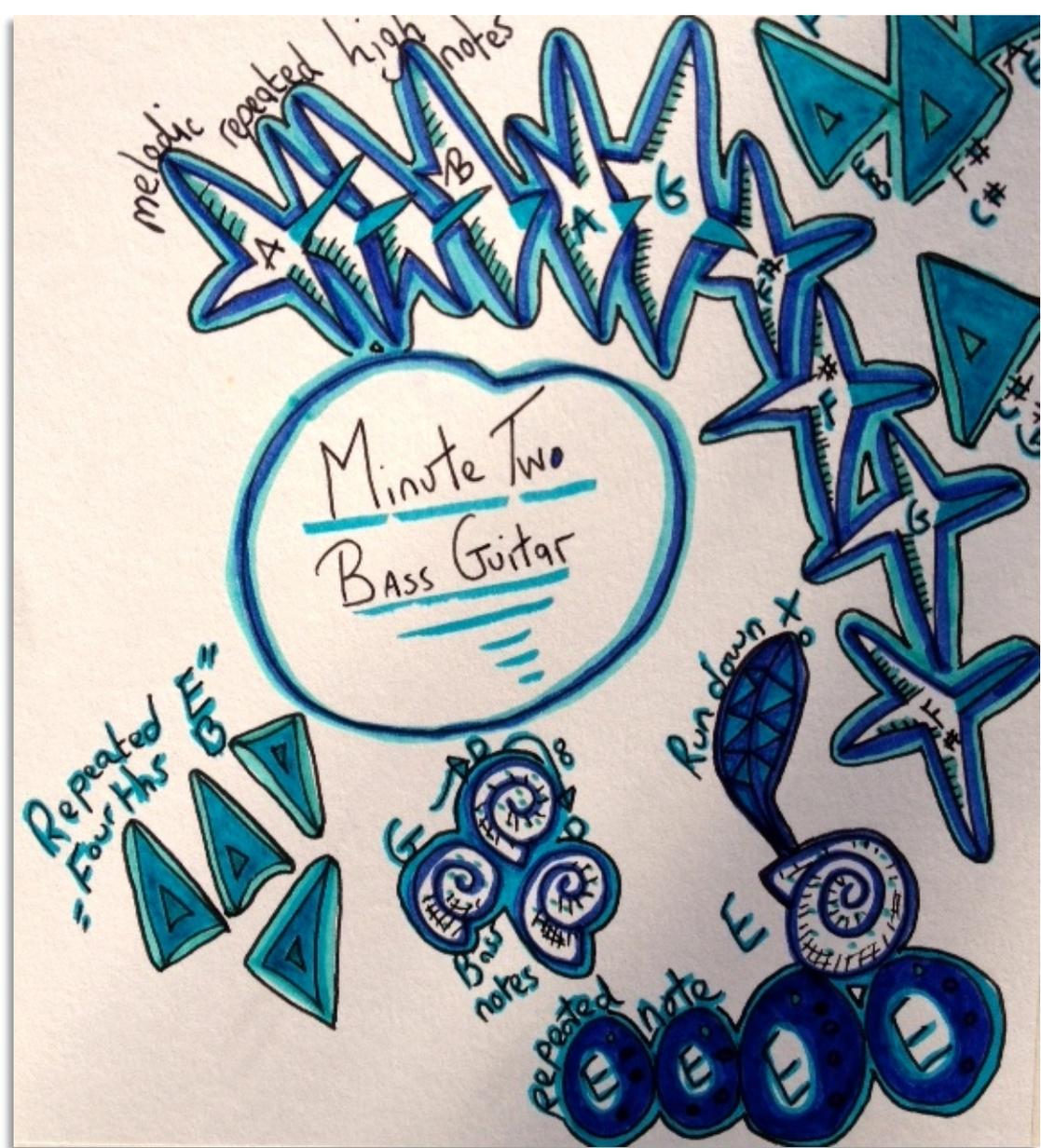
Minute Two Piano (Participant)



Participant comment:

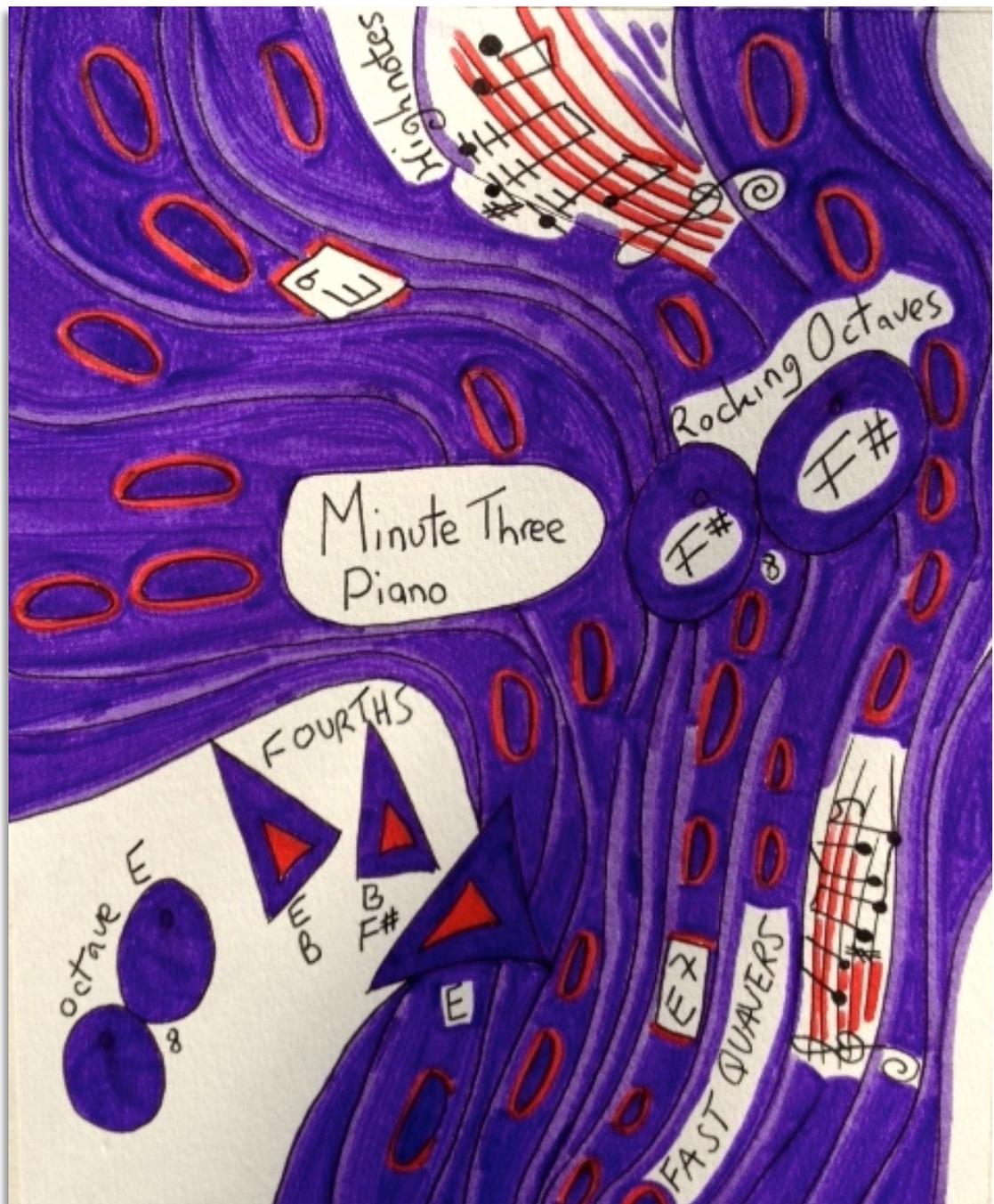
- Who is this person?
- What's expected of me?
- More fourths!
- Major chord – secure base, home!

Minute Two Bass Guitar (Researcher)



No comment

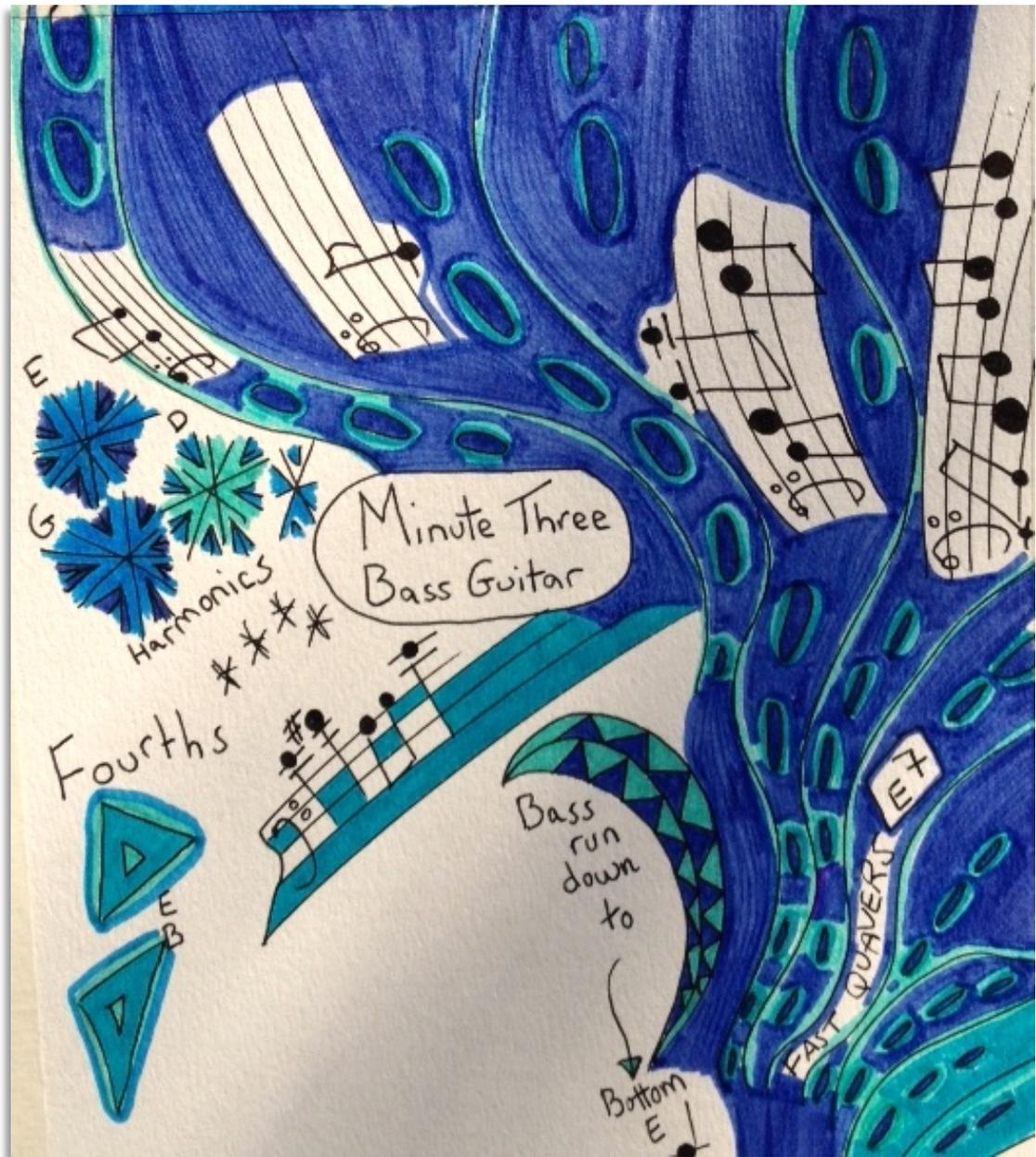
Minute Three Piano (Participant)



Participant comment:

- Descending major chords
 - Remind me of Mahler, 1st symphony?
- I'm holding a secure bass/base for the bass guitar to riff and improvise
- I want to join in!
- My notes sound technically challenging/impressive – I had been listening to Liszt's B minor sonata before listening to this – but I was only playing random notes quite fast

Minute Three Bass Guitar (Researcher)



No comment

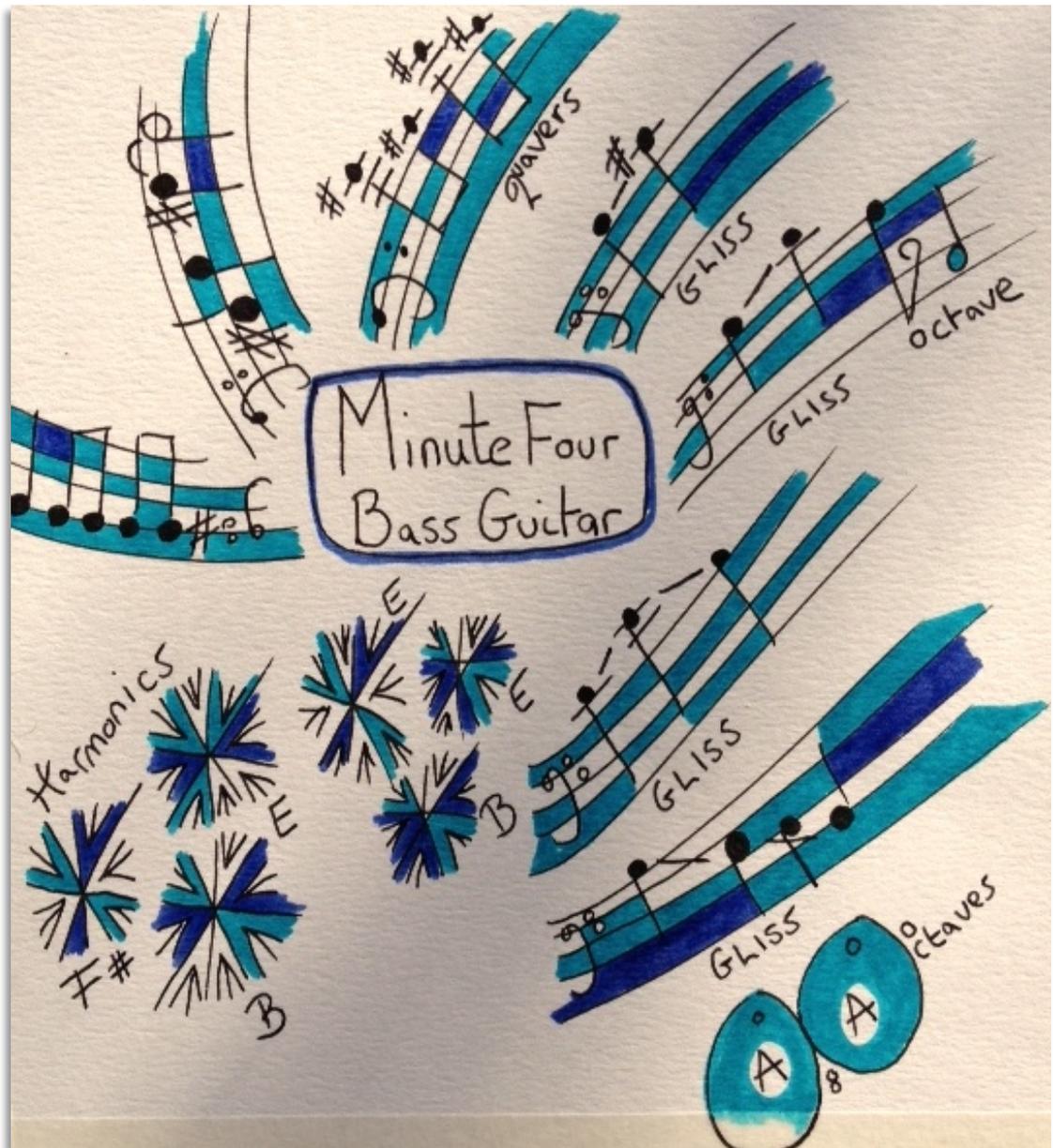
Minute Four Piano (Participant)



Participant comment:

- Rest
- Calm
- Reflection
- Ouch – C on C#

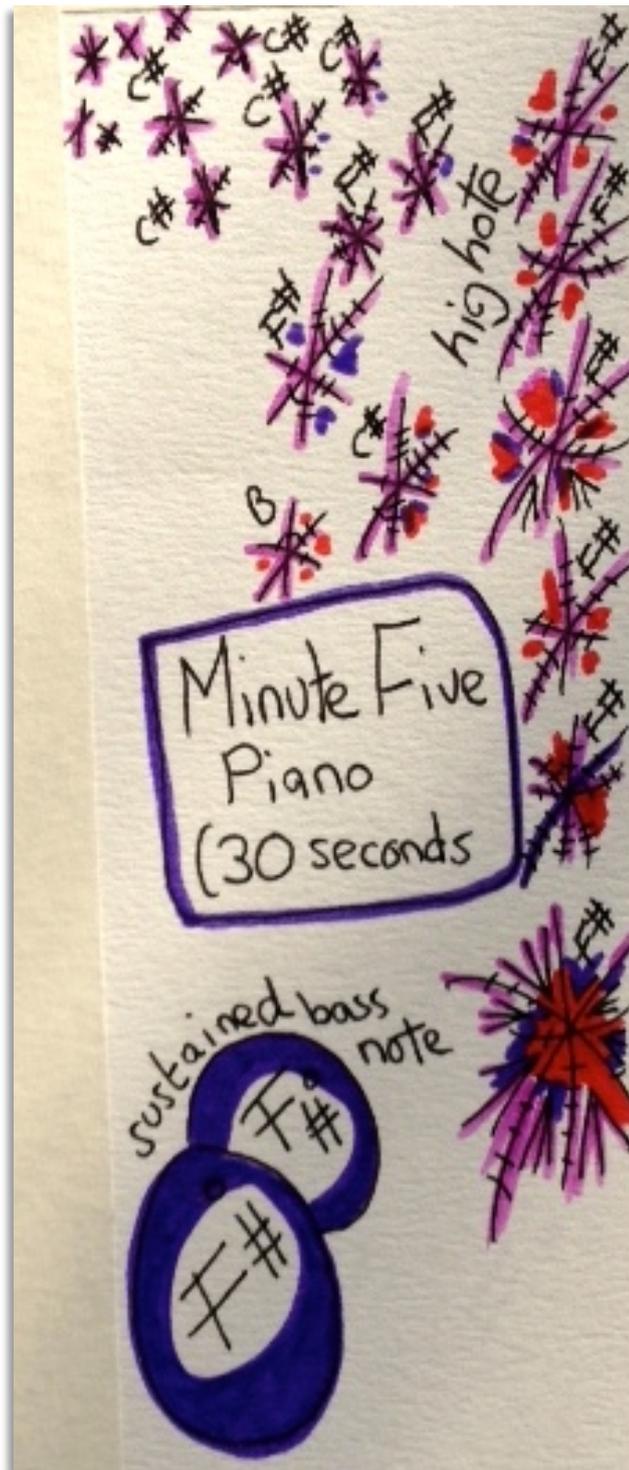
Minute Four Bass Guitar (Researcher)



Participant comment:

- Beautiful harmonics/harmonies together
- Still resting

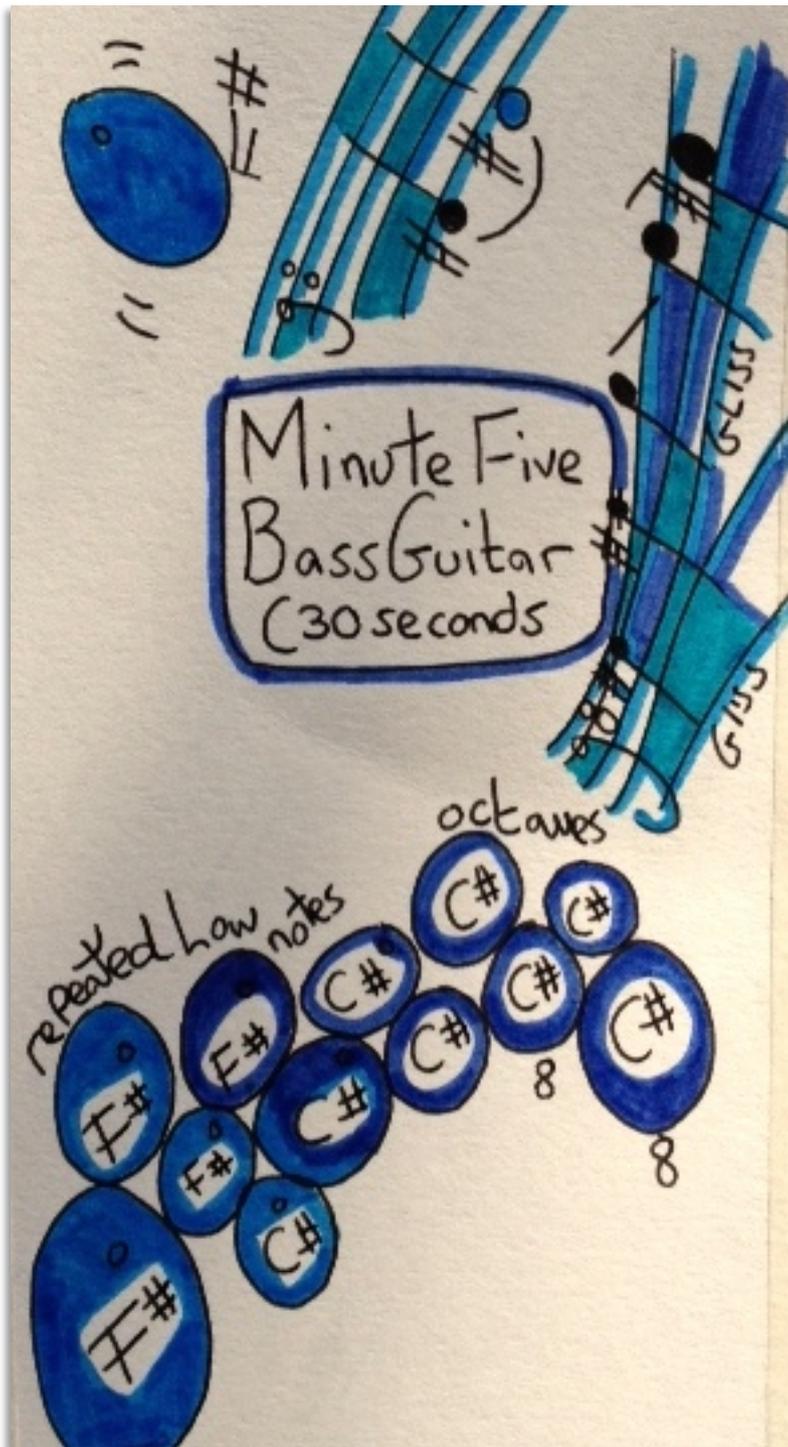
Minute Five Piano (Participant)



Participant comment:

- Yes, we found each other
- Mahler again, those high octave notes

Minute Five Bass Guitar (Researcher)



No comment

Further participant comments.

- What an amazing experience
 - To listen to my own improvisation
 - And to see the graphical score
- I've never seen anything like it!

Thank you.

I.4.5 Bullfinch – Graphic Score

The score created in response to the music with Bullfinch is presented in two temporal sections. No key is provided.

Graphic Score

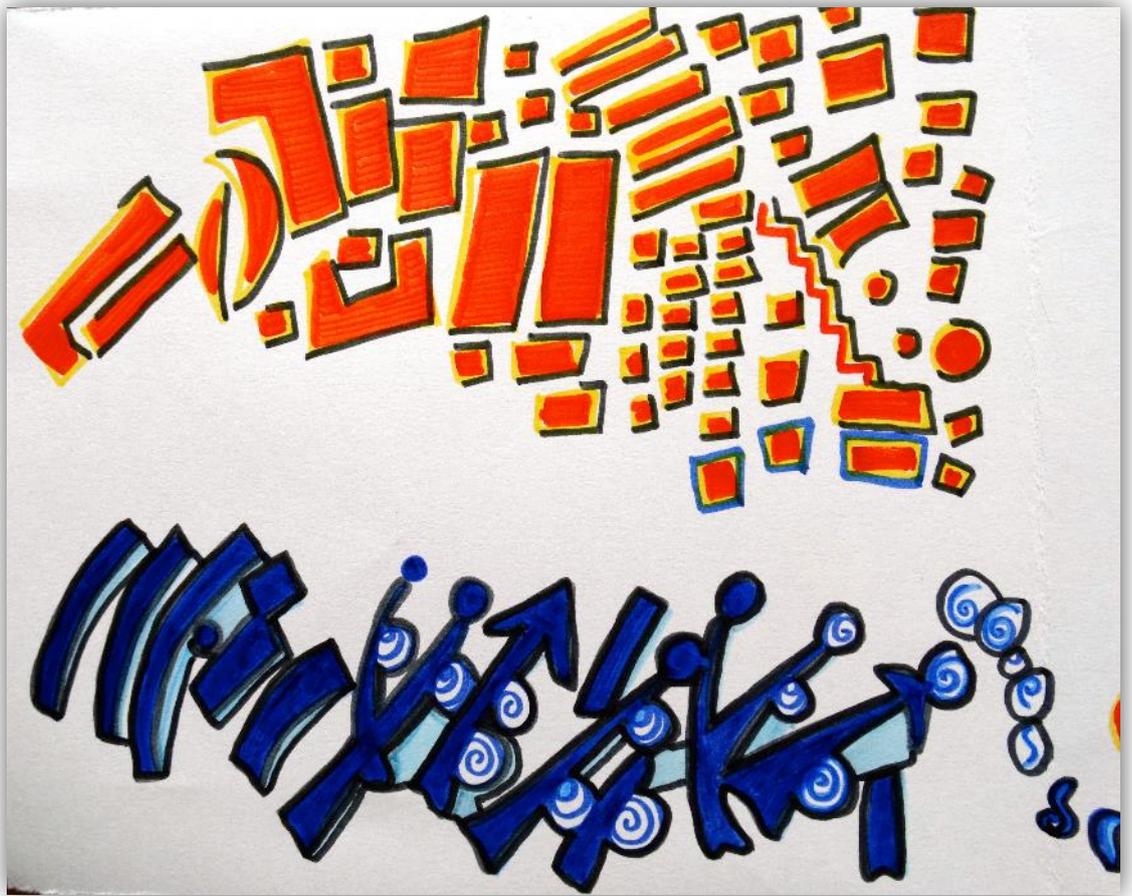
Interview Number 4

Becky White PhD

The University of the West of England

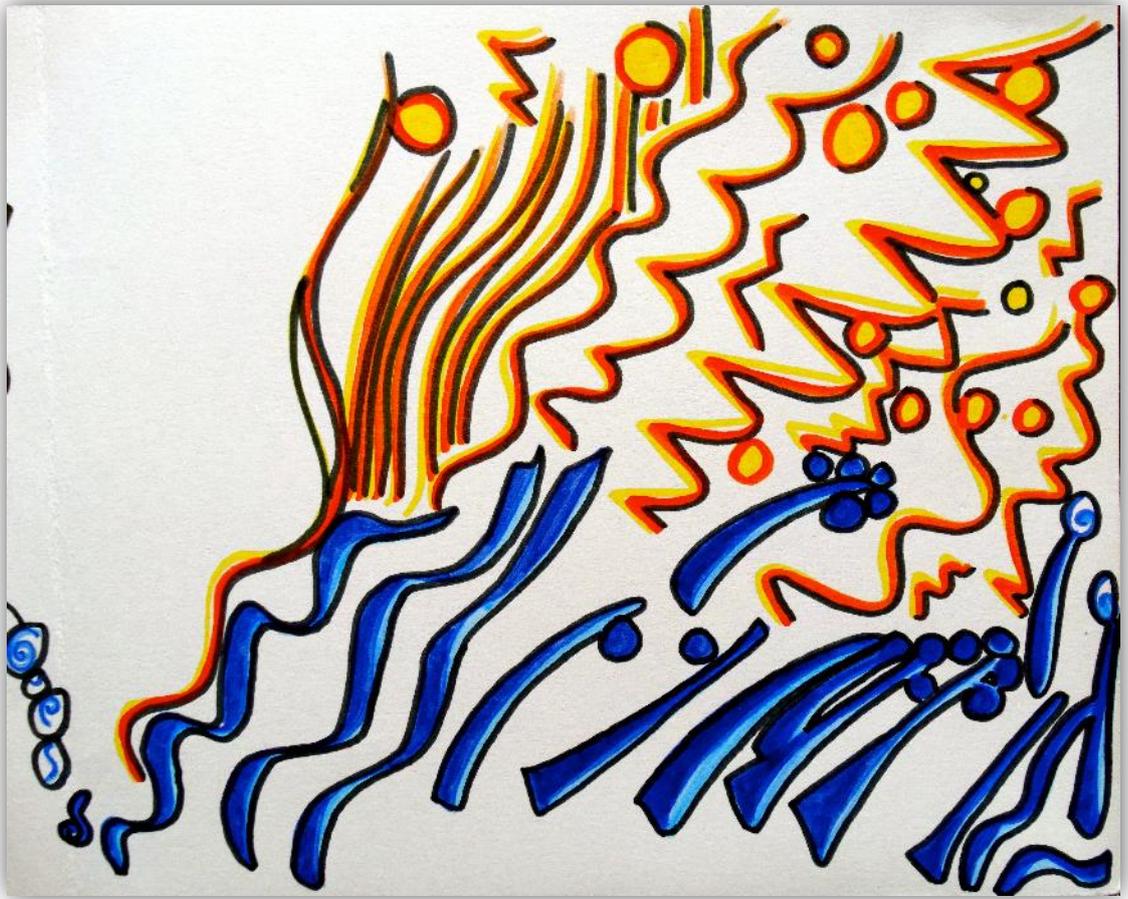
- The score is in two sections and a visual impression of the music.
- The orange/yellow shapes represent the participants music.
- The blue shapes represent the researcher's music.

0:00 – 3:30



No comment

3:44 - 5:59



No comment

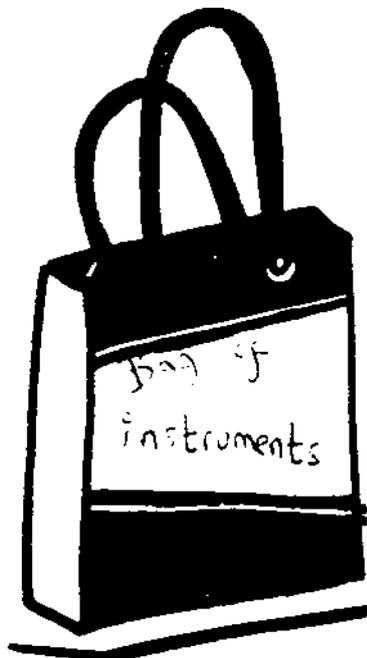
1.4.6 Wren - Graphic Score

The score created in response to the music with Wren illustrates the verbal dialogue which occurred at the same time as the instrumental sounds. No key is provided.

Graphic Score
PhD Becky White
Participant W5

Minute 0

B: So I'll join in ... I mean I brought this stuff, I'll get it out,
I'll get it out the bag, it will be a start,
but just whatever you want to do.



Minute 0

W: [00:20] Ah, I have got to have a go on one of these [the glockenspiel].

B: [laughs].

W: Ahh yeah.

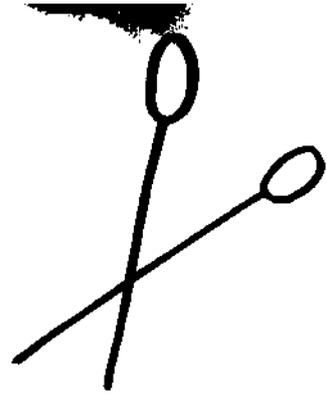
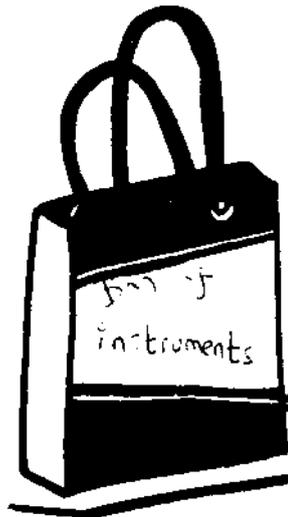
B: [Laughs] so he's tempted!

W: Ahh it is!

B: And we've got two beaters.

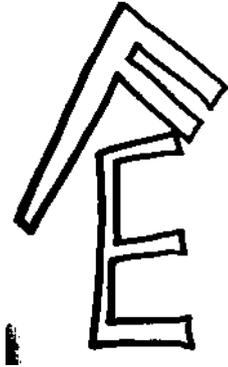
W: [laughs] ahh yes [high pitched voice]!

[00:32, B - rustling sounds of bag /W - plays a major 2nd, notes D and E on the glockenspiel].

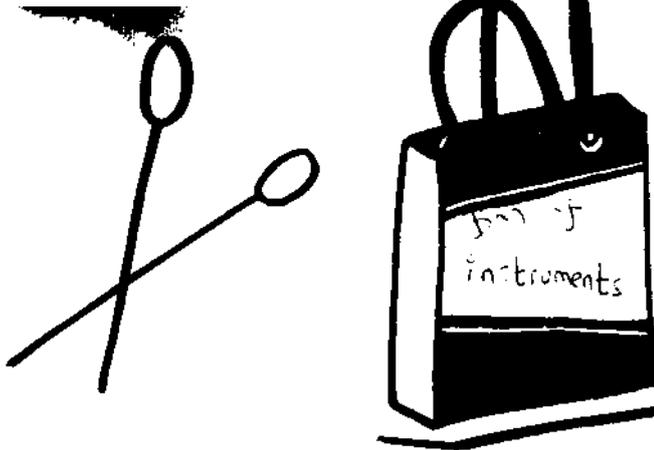


Minute 0

[00:36 W plays the opening bars of Fur-Elise, in the key of G, on the glockenspiel].



B: [00:54] Don't feel that you have to play percussion, just whatever. There is quite a few things in the room so [B talking over W as he plays the glockenspiel].

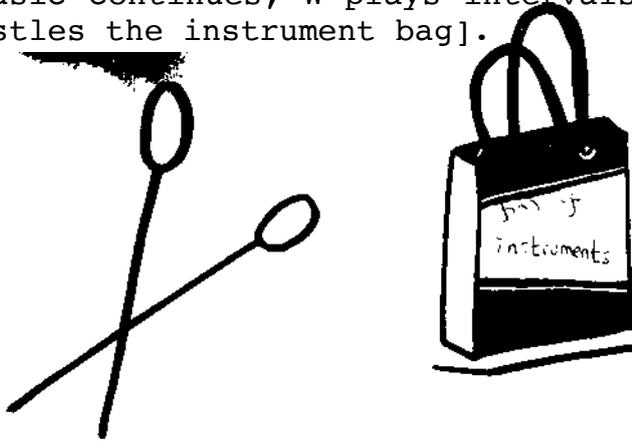


Minute 00:00 [Space for Participant Comments].

No comment

Minute 1

[music continues, W plays intervals on the glockenspiel /B rustles the instrument bag].



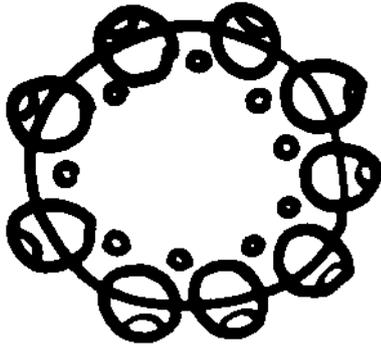
W: So just [1:03] so if this was a screen play or something, ah you can just, what I would have said was I probably might have started with that there [indicates the glockenspiel and he plays the first few bars of Fur Elise again].



B: You could do.

W: Because that reflects to me is erm nursery rhymes, it reminds me of one of the first melodies you might ever find as a child [glockenspiel sounds] and that melody is part, of my very first, 'oh wow you've got instruments to re-tell this story'. Ok, nooo, here we are this is what we're at now you see with this thing, more traditional acoustic instruments that are to do with [pause] sound healing [holding the belly dancing bells] like Tibetan bowls and rattles and things like that.

Minute 1 [part 2]



B: Oh yeah.

W: We've got right into how frequencies allow the erm emotional state to be alleviated, you know gone into the science behind it a little bit because obviously you've got, you've got your main stream science that said, you know does it help with music with autism.

No comment

Minute 2

W: and music with difficulties and things like that, but then there are also metaphysical properties to music which are all, which are scarcely talked about in an academic world, or are they? I think you just? Sometimes in the academic world you just got to uncover a small corner where there is a lot of research, it is just it isn't actually shouted out about [sounds of B tuning the bass].

B: Yeah it depends what sort of academic world you are in, it could be music psychology, you know or performance or whatever [bass tuning sounds continue].



W: Ah I see, interesting.

B: Music therapy or whatever [bass sounds continue].



W: Yes so just that melody [2:38, W plays the first bars of Fur Elise on glockenspiel].

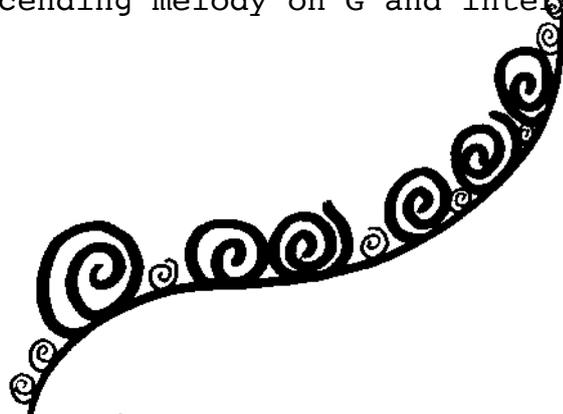


Minute 2

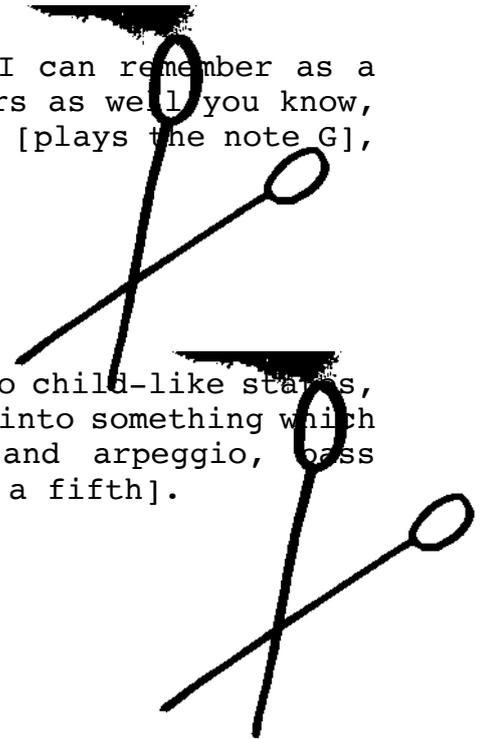
B: Yeah.

W: That takes me back, as far back as I can remember as a child, and there is being on the Waltzers as well you know, because the melody. So if I played that, [plays the note G],

that would be my way of taking you back to child-like starts, through that melody and then it would go into something which was my own [glockenspiel 5ths on G and arpeggio, bass descending melody on G and intervals of a fifth].



No comment



Minute 3

B: Yeah Ok. [3:22, W and B play on the glockenspiel and bass and laugh].

W: Oh no I can't translate it but [more glockenspiel sounds, 3:25] but that's amazing that is, but yeah we.

B: [laughs] Do you like that one?

W: Yeah we do this is one of my favourites, every time as a child or in a doctor's waiting room [sounds of bass scales] there would be like two keys missing or something.

B: Oh so!

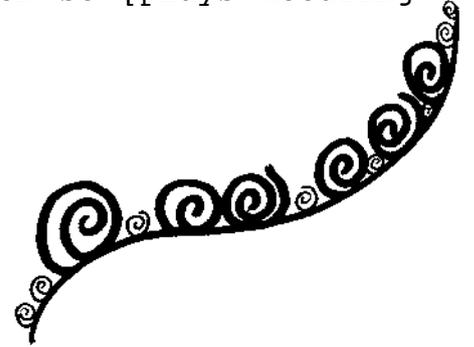
W: You'd be gutted [laughs].

Minute 3

B: You've got a full one there.

W: [Laughs].

B: You get them quite easily on amazon so [plays noodling major thirds on C and A, down to G].



W: Oh and this [picks up the shaker]



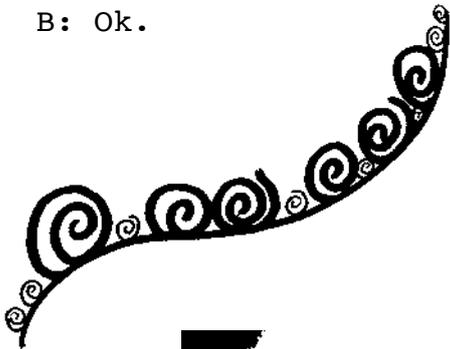
W: I've recently got into the rattles, like sounds of meditating as well, so singing bowls and long tones

No comment

Minute 4

W: and things like that.

B: Ok.

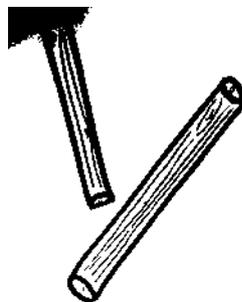


W: And isochronic tones and things like that [pause] so yeah I just, love all these, what's these like [picks up the claves and plays]



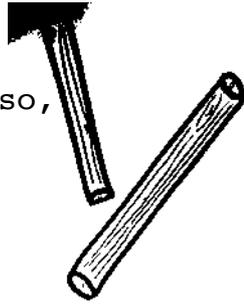
B: Yeah they are just claves, I mean there is [picks up the other claves to show him].

W: Claves yeah yeah yeah.



Minute 4 [part 2].

W: Right ah so,



ok what's this one [looking through the instruments which are laid out on the floor] bass sounds continue].

B: Erm yeah the mouth piece is missing.

[W sounds the melodica, three rising notes F to A] Ok yeah, I've not ok erm

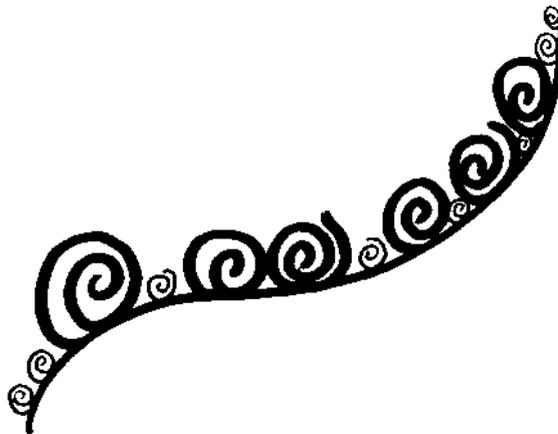
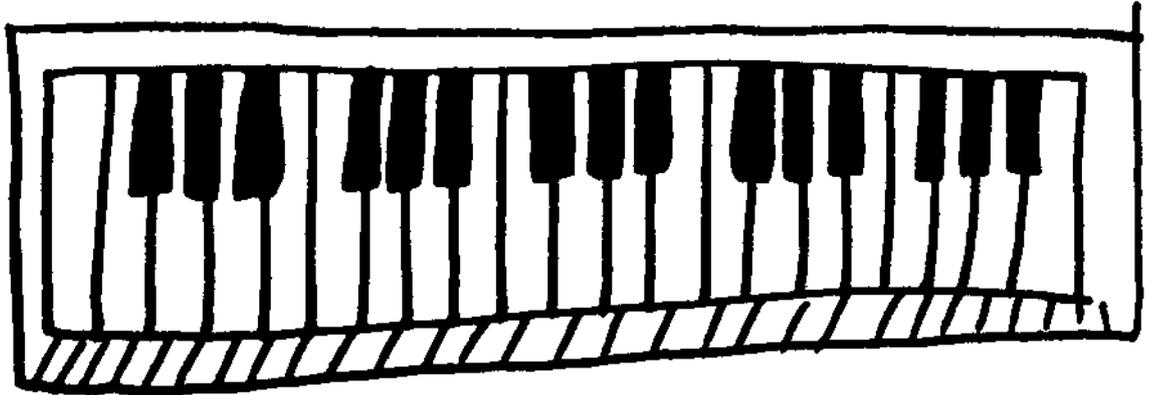
B: Just what ever, what ever [bass notes F to C].

W: Ok so we have [moves to the piano] been on a bit of journey and the past in history, [4:55 W starts to play the piano].

No comment

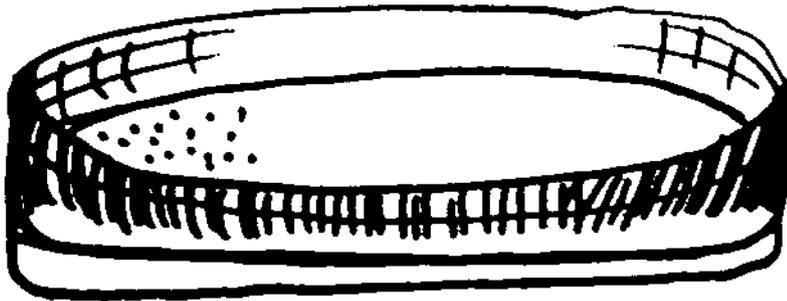
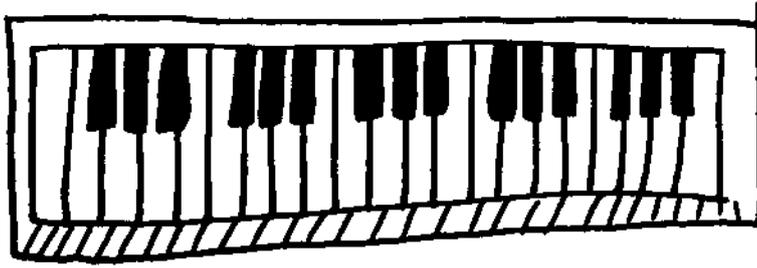
Minute 5

[W plays a chord sequence on piano; F major, G major, A minor. B joins in on the bass at 5:16, the two instruments are extremely out of tune].



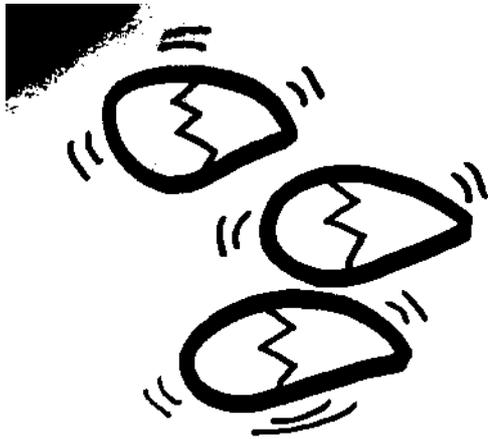
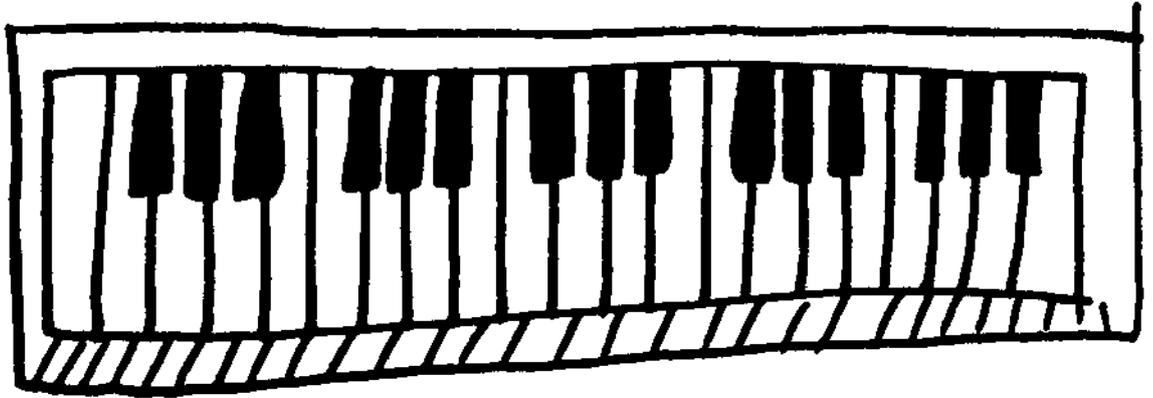
Minute 5

[W continues to play the A minor chords on the piano, at 5:26 B swaps to tapping in time on the ocean drum].



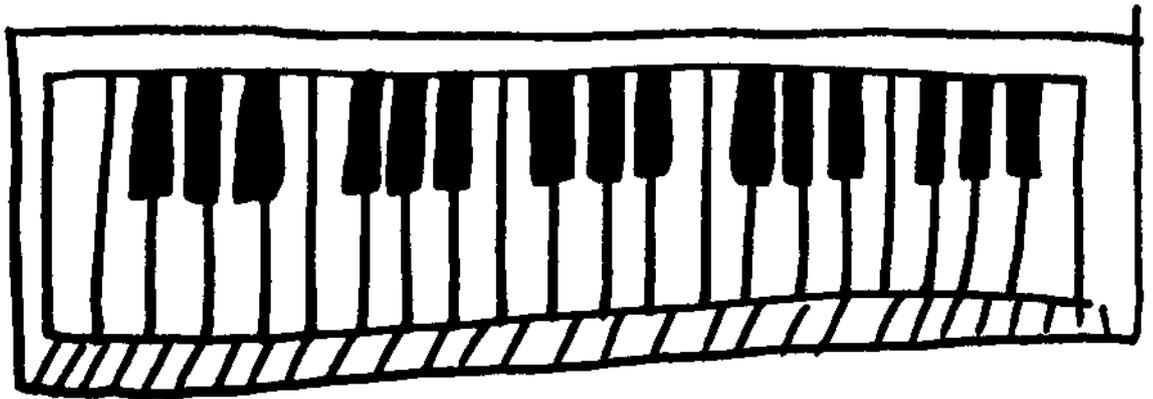
Minute 5

[W continues to play piano, then at 5:48 B plays the egg shakers].



Minute 5

W: [they continuously play together until 5:51] So it is things like that thing, just like [plays a falling melody from E to A on the piano, B joins in with egg shakers] and then I would get that and I just would go, I'd melt.



No comment

Minute 6

B: Yeah you love it.

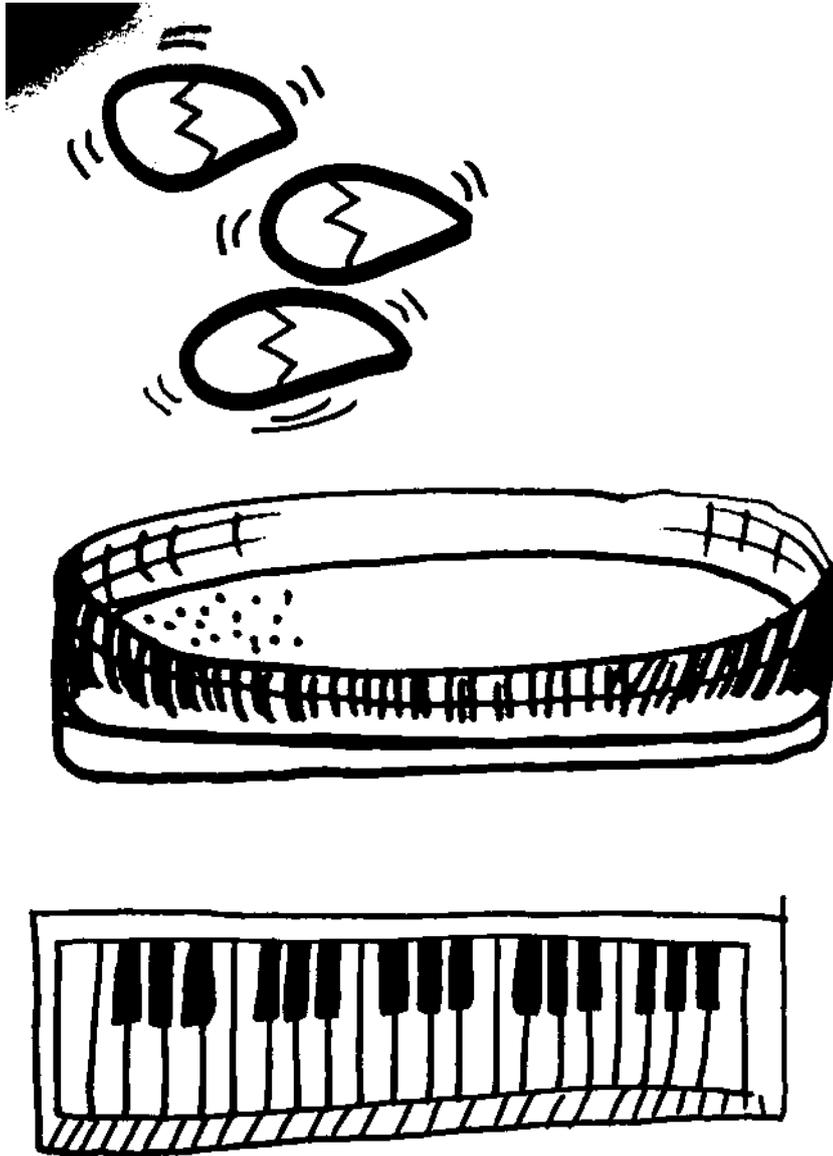
W: 'Ah what is that, how did I do that? [in reference to the descending piano melody].

B: 'What is that little phrase' [speaking at the same time as W and matching in her voice his expression of feelings about the piano melody].

W: So yeah and it's just [the music stops] it's that 80s kind of power ballad, piano, high strings that kind of thing [6:14, W plays again the chord sequence in A, example of a high piano melody and B joins in on the egg shakers and ocean drum together].

Minute 6

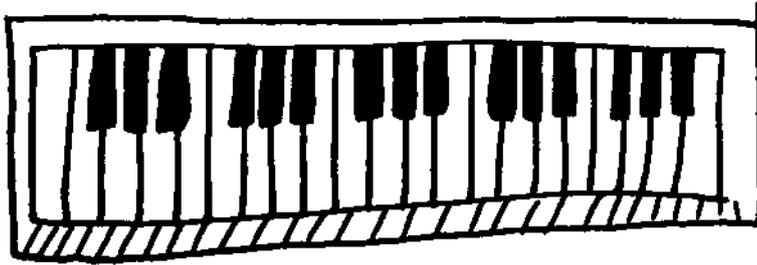
[w on piano, B on ocean drum and egg shakers, chord sequence in A minor. At 6:39 there is a brief pause landing on the tonic, and then the music starts again].



No comment

Minutes 7

[W continues the piano chords F major, G major, A minor and B joins in on the egg shaker and ocean drum]

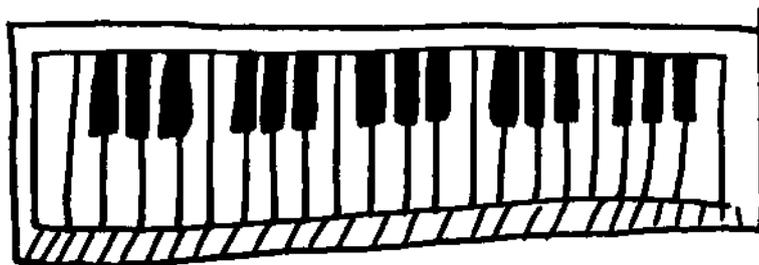


W: I could just play around for hours.



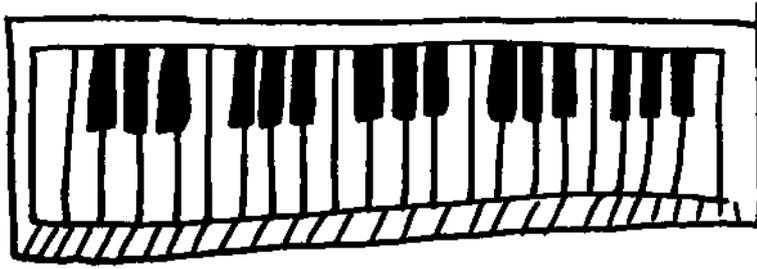
Minute 7

[W continues playing on the piano and B joins in on the melodica with a melody on A at 7:18, the two instruments are out of tune].



No comment

Minute 8



[The music continues and slows, finishing on A minor].

W: [8:55, laughs] feeling around there for something, for something else [fiddling with the music stand and laughs].

B: [laughs] just tap it.

No comment

Minute 9

B: The tuning like, this is you know.

W: Ah that is terrible!

B: You know the piano is out, so that is why I stopped playing the bass.

W: That's terrible, can I play the bass for a minute yeah?

B: Certainly, course you can, yeah have a go.

W: [B hands W the bass] that is a very nice acoustic bass. I don't know how to play any slap bass at all



Minute 9

W: what I love.

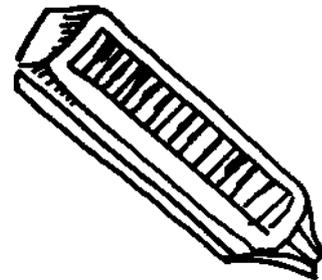
B: Bit hard on that, because of the strings and that.

W: Yeah, what I love about these is harmonic [plays the bass] so [9:22, continues to play a chordal sequence on the bass in the key of B minor, around the following chords; B minor / F sharp minor, A major, D major, F sharp minor and E major].

[9:22 - 9:35, W plays bass on his own.]

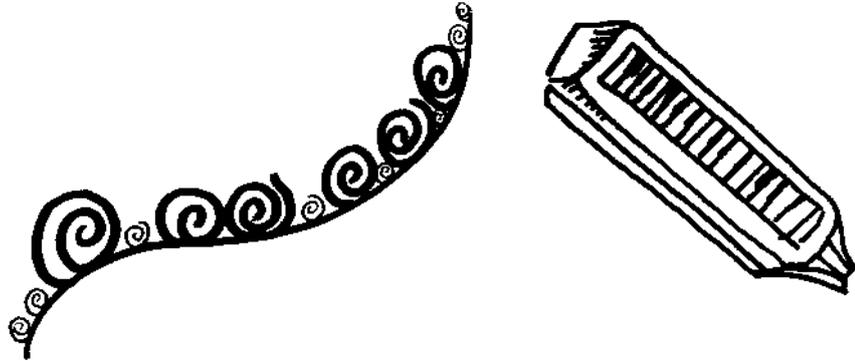
[9:36, B joins in on the melodica].

No comment



Minute 10

[They continue to play, B is feeling around for the key which she eventually finds B minor at 10:06].



No comment

1.4.7 Curlew – Graphic Score

The score created in response to the music with Curlew is shown in two temporal sections. No key is provided.

Graphic Score C6
Becky White

Minutes 00:00 – 2:22

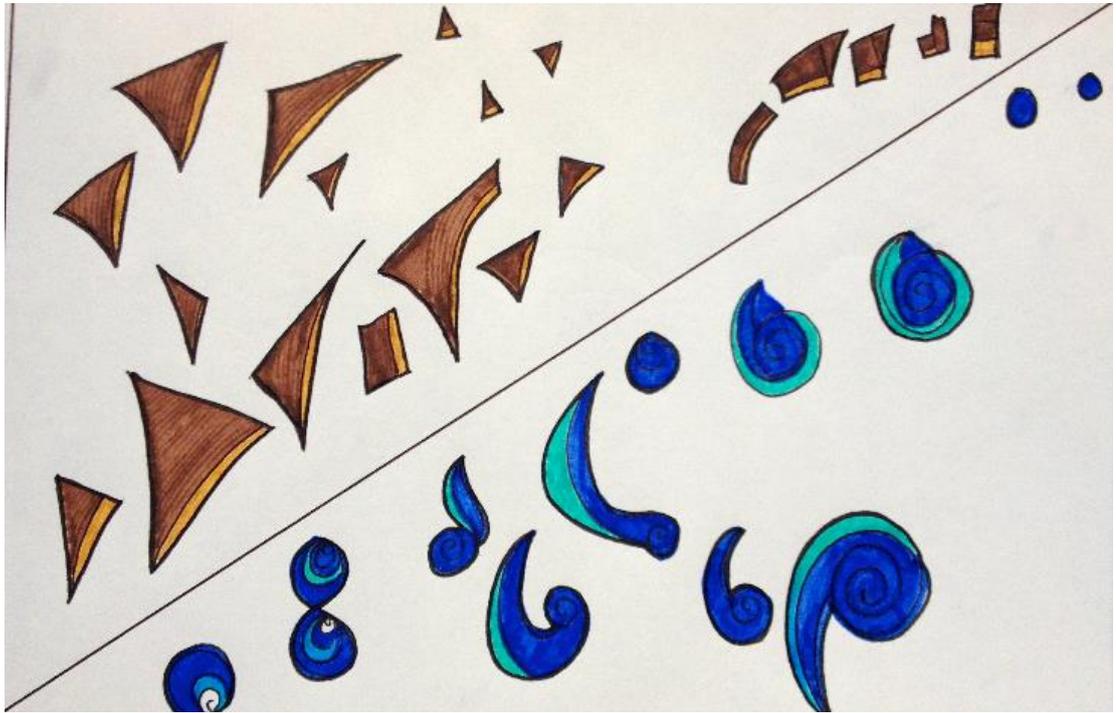
Participant plays piano (brown and grey graphics) and researcher plays bass (blue and green graphics).



No comment

Minutes 2:23 - 3:10

Participant plays piano (brown) and researcher plays bass (blue and green).



No comment

9.1.7 Swallow – Graphic Score

The score created in response to the music with Swallow is shown in seven one minute sections. No key is provided.

Graphic Score S7
Becky White PhD

Top line: Participant Lap-Harp
Bottom Line: Researcher Acoustic Bass Guitar

Minute One:

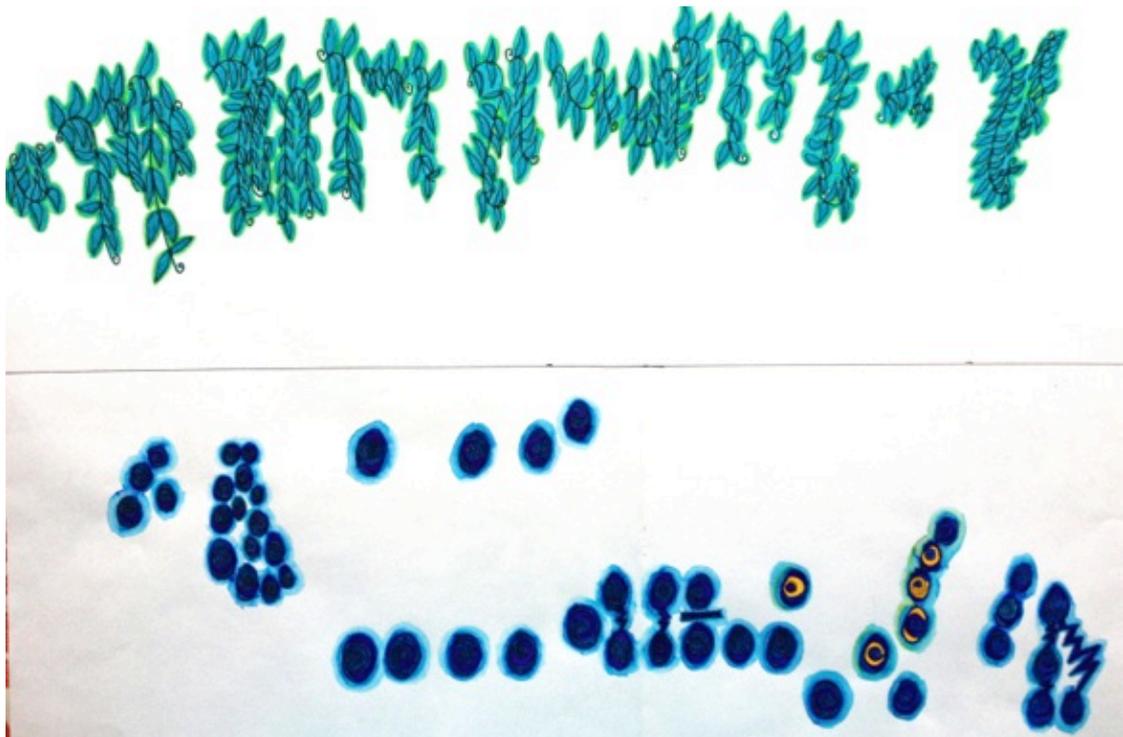


Participant comments:

Love the harps descending figure and note it's link with nature whilst the bass figures are a warm purple colour, adding warmth to the sound.

Felt the bass needed to begin earlier in the score..'on my own', which I didn't feel whilst playing!

Minute Two:



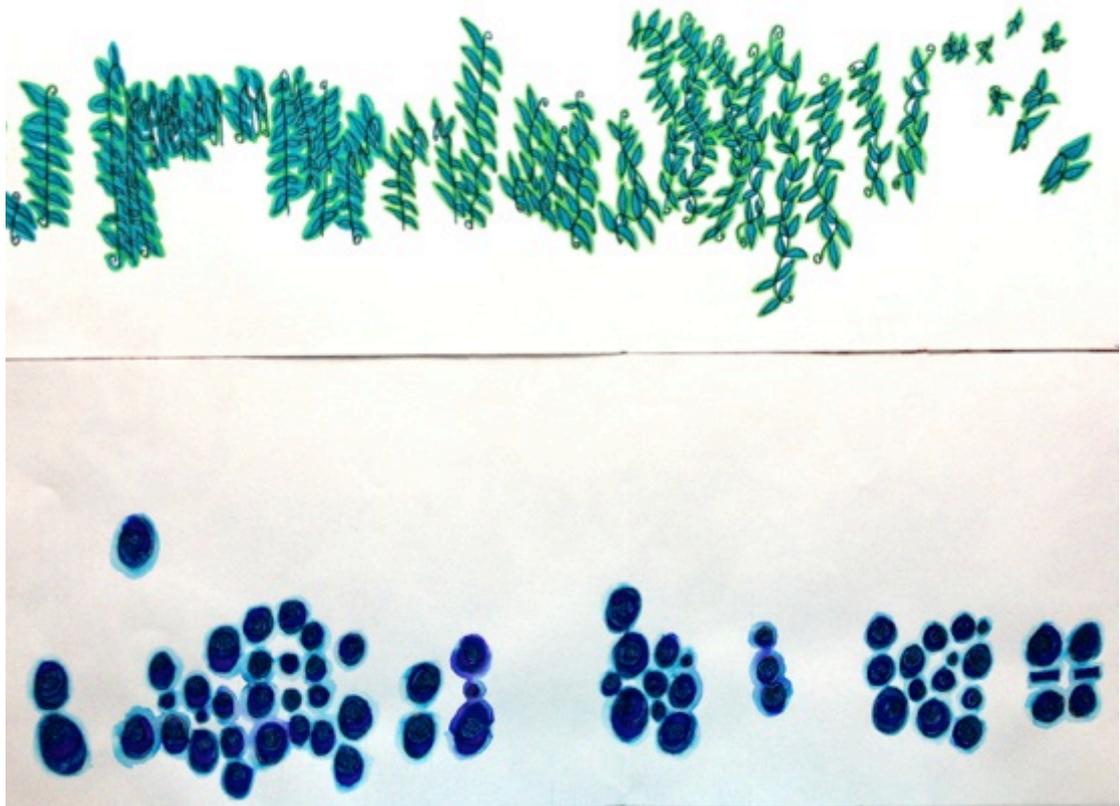
Participant comments:

The harp figures are matched by the bass and this is evident in their score clusters.

Found myself checking if I was looking at the correct part of the score a couple of times during this minute.

Love the bass glissando figure..can relate to this.

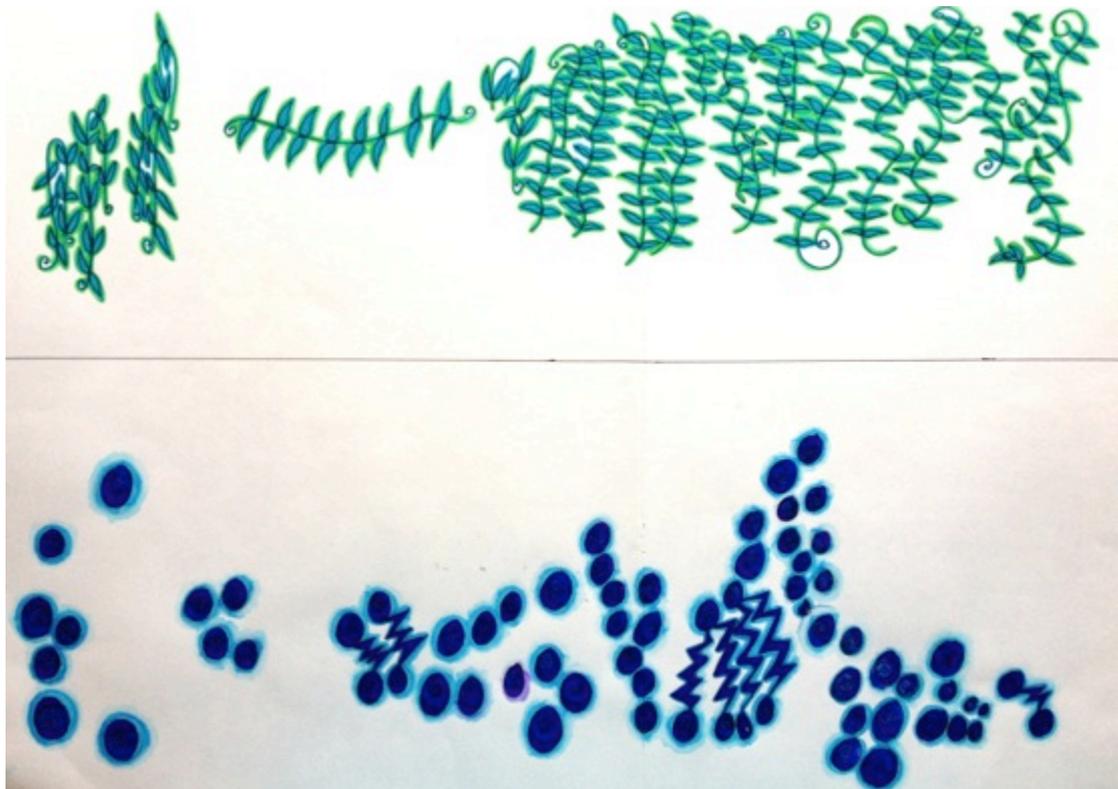
Minute Three:



Participant Comments:

No comments whilst listening, except for the final figures from the harp. Here I can visualise birds.

Minute Four:



Participant Comments:

A change in timbre and a change in the score with the harp figure now lengthways.

A vision of a dragon is apparent to me whilst looking at the bass score. I am following around other than 'in time'.

The flowing harp figure with it's rounded edge feels as though it's signalling me relaxing more into the playing?

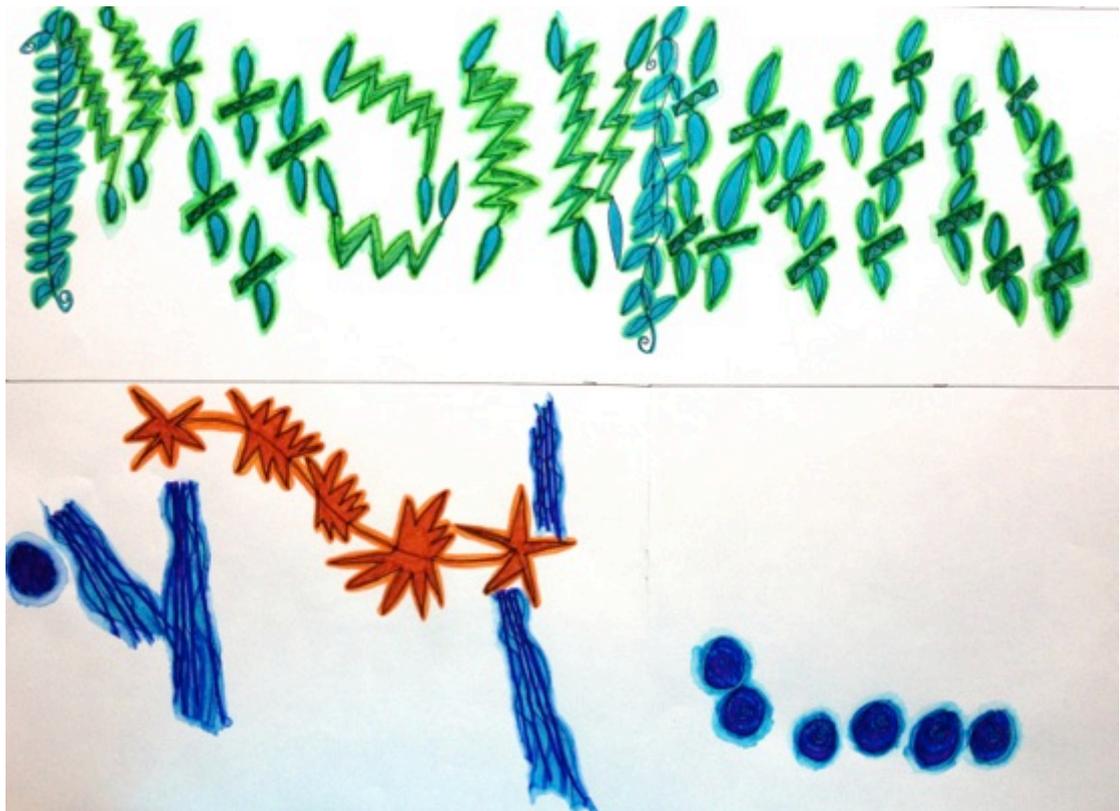
Minute Five:



Participant Comments:

No harp percussion noted but the vibrant 'sparks' and colour on the score seems electric!

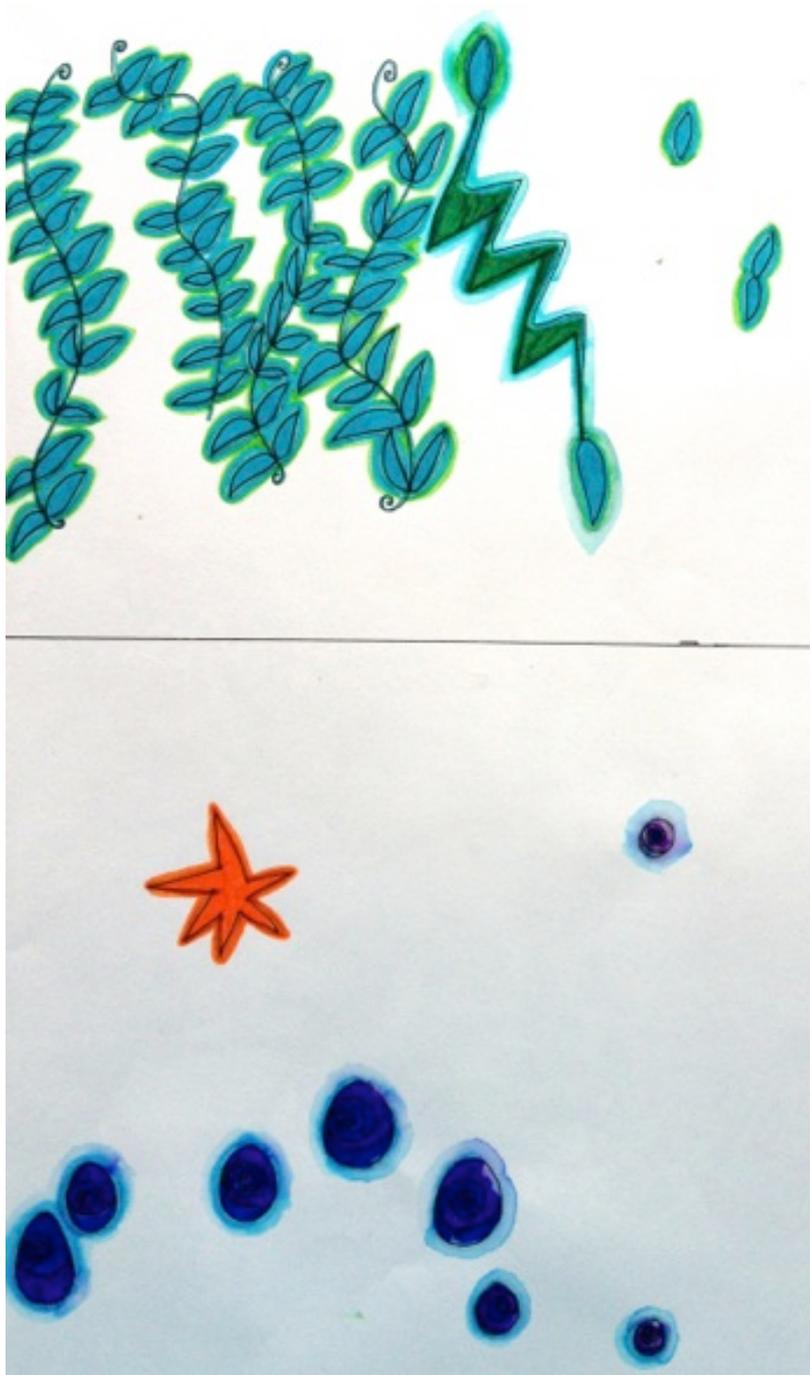
Minute Six:



Participant Comments:

Whilst playing, I felt as though the harp was moving with the bass and this to me is shown here, with both scores coming closer together.

Minute Seven:



Participant Comments:
Content!

9.1.8 Goldfinch – Graphic Score and Key

The score created in response to the music with Goldfinch is shown in twelve one-minute sections. A key is provided.

Graphic Score Key Participant 8

Each score represents a minute of music and reads clockwise from 0 to 60 seconds.

The shapes and marks are an approximation and visual interpretation of musical events.

- Purple/blue – participant on double bass
- Green – researcher on melodica
- Yellow – researcher on belly-dancing bells
- Brown – researcher on wooden snake shakers
- Grey – researcher on thunder drum

Double Bass Key





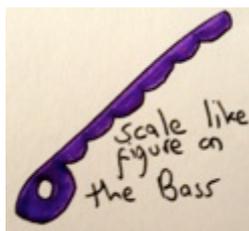
Harmonics
on Bass



Hitting fingers
and hand
slapping body
of Bass.



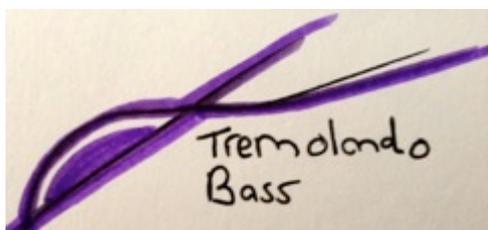
Bouncing
bow
off strings



Scale like
figure on
the Bass

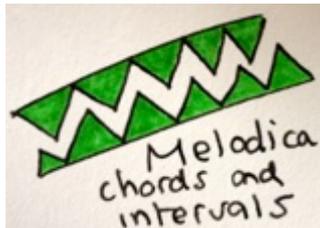


tr trill
on
Bass



Tremolando
Bass

Melodica Key



Other



1.4.8 Goldfinch

In the music of Goldfinch, the participant plays the double bass (purple shapes), and researcher plays melodica (green shapes and small hand percussion)

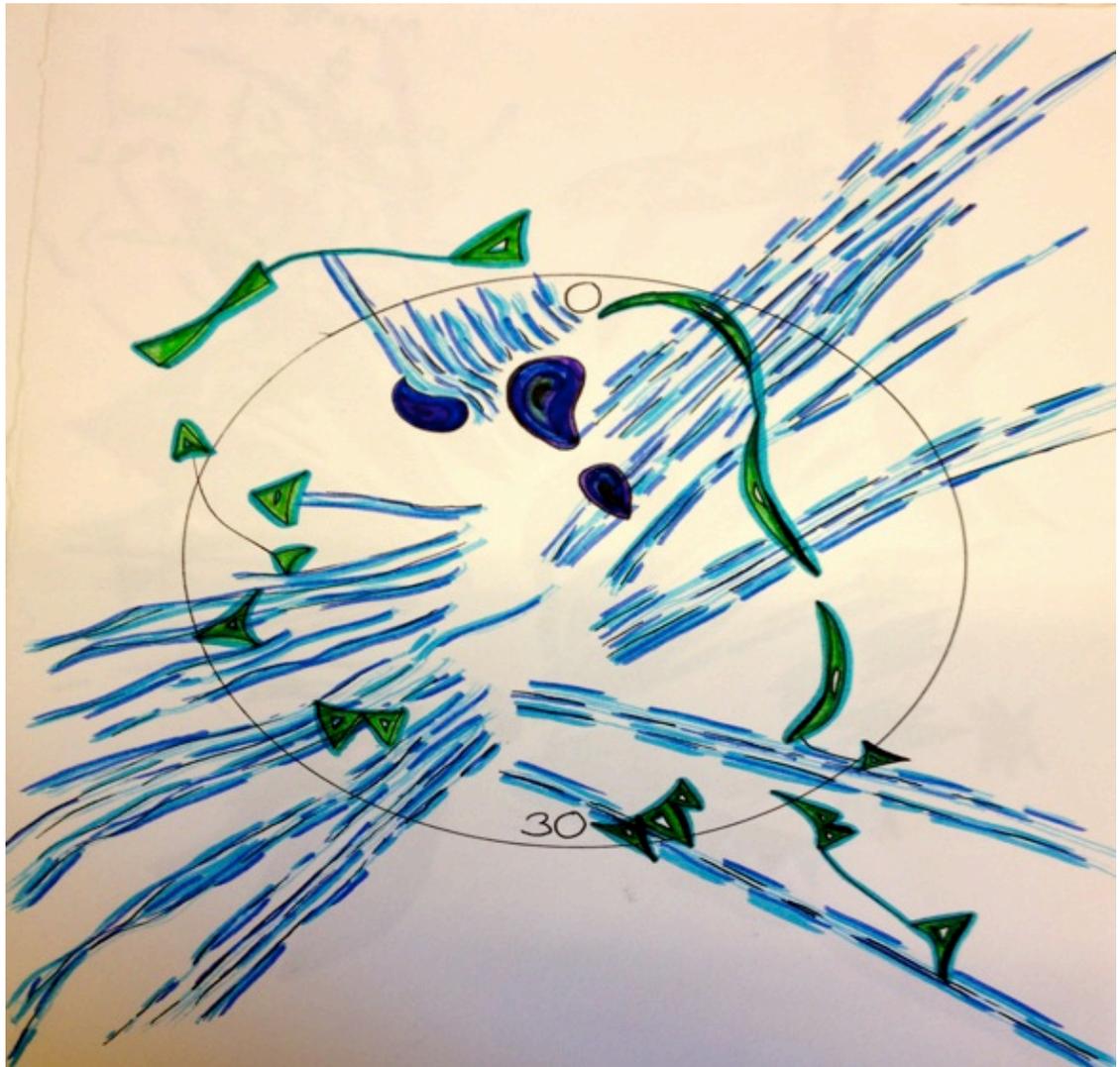
Minute 0



Participant comments:

Beautiful score throughout. I would be very interested to hear it performed by someone else with and without the key. Interesting how the notation reflects the timbral interactions but not tonalities or rhythmic events.

Minute 1



Participant comments:

The differences in sound and visual really line up well in this panel.

Minute 2



No comment

Minute 3



Participant comments:

In the previous pages, it appears as if the graphics are emanating from the centre. Beginning on this page, it appears to me that the centre is intentionally left black. Is there a reason for this?

Minute 4



No comment

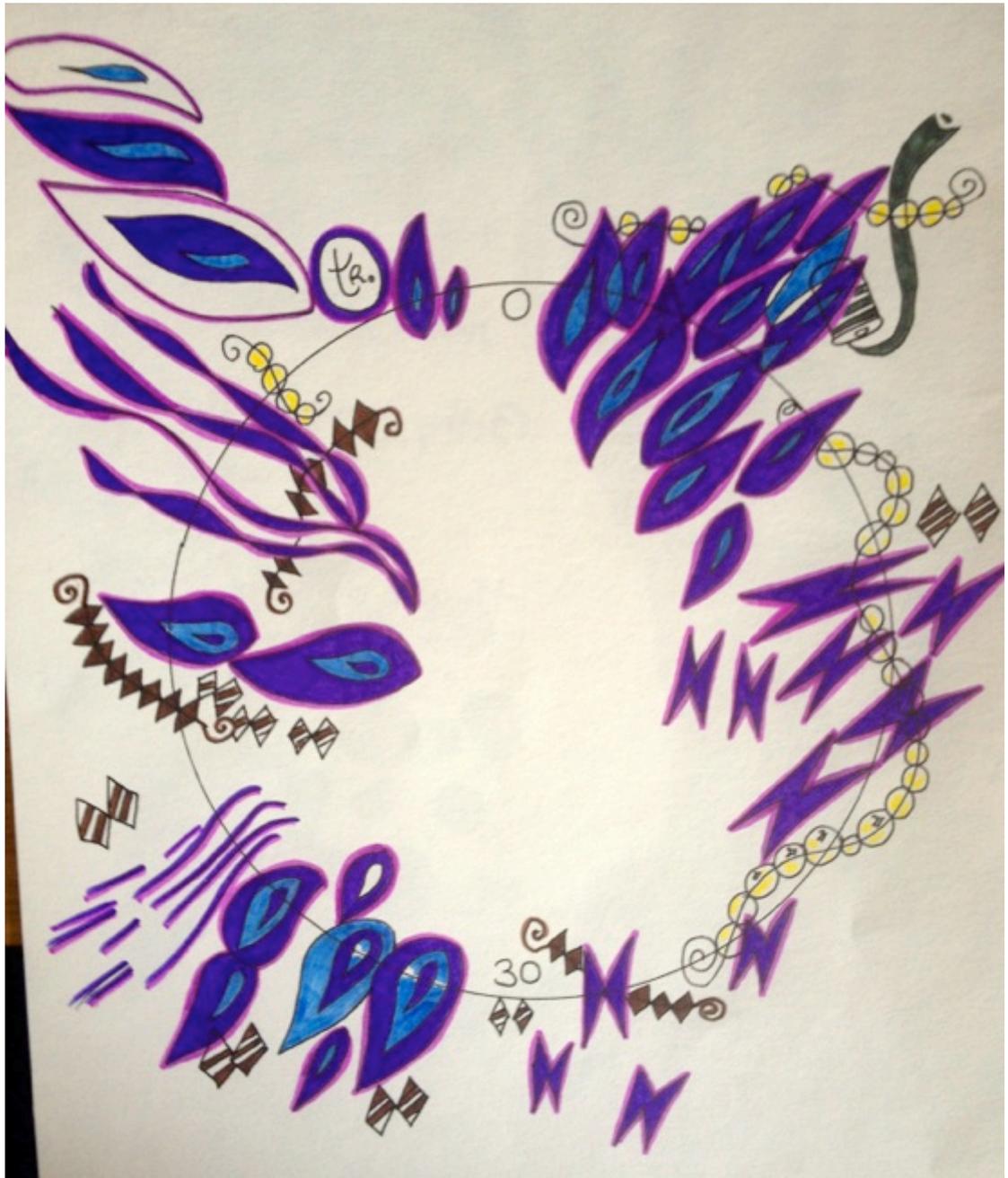
Minute 5



Participant comments:

It would be very interesting to play this again and compare the results.

Minute 6



No comment

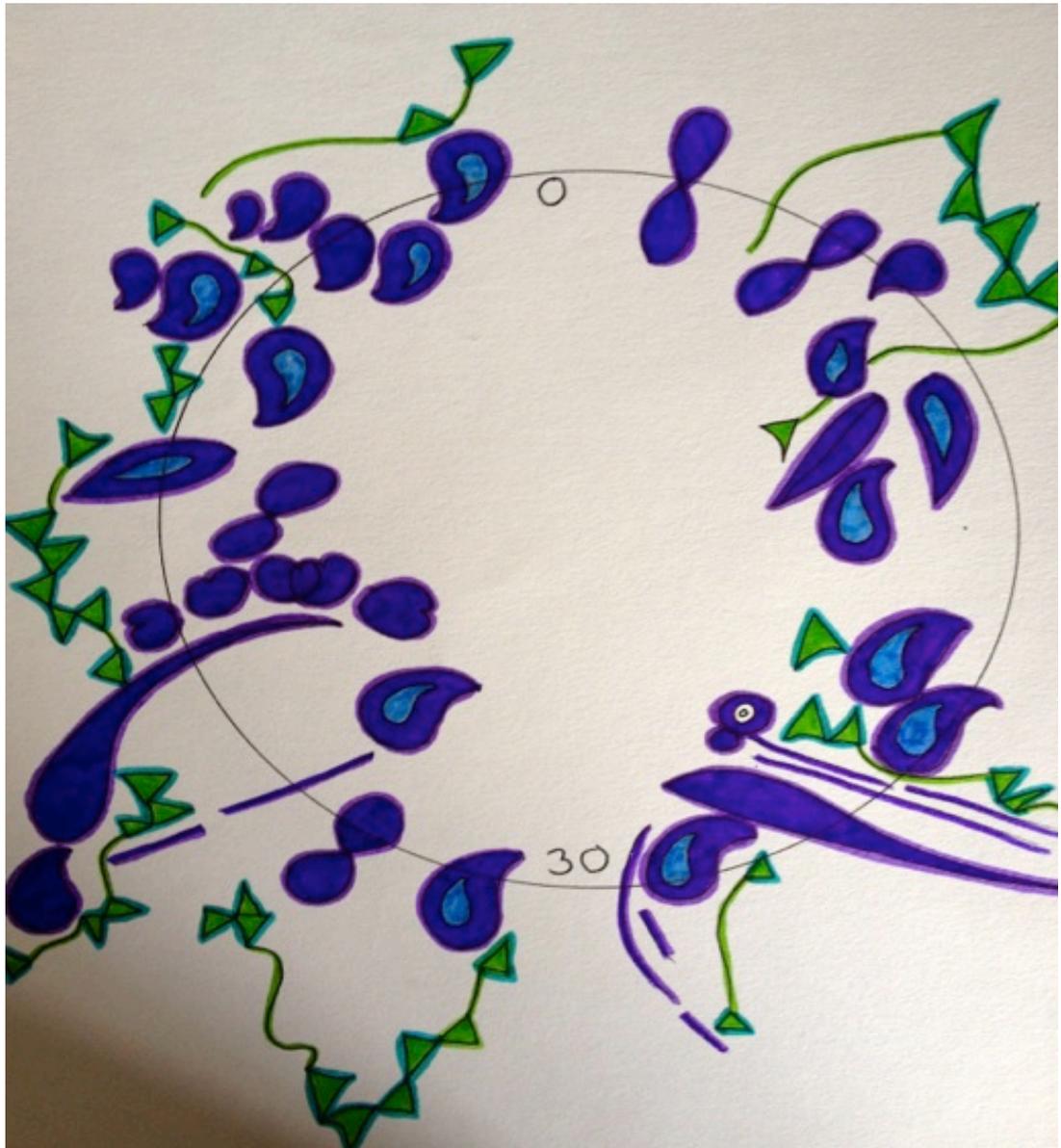
Minute 7



Participant comments:

To me, this music represented on this page has a distinct emotional character. I wonder if it's possible to draw the graphics in a way that captures this?

Minute 8



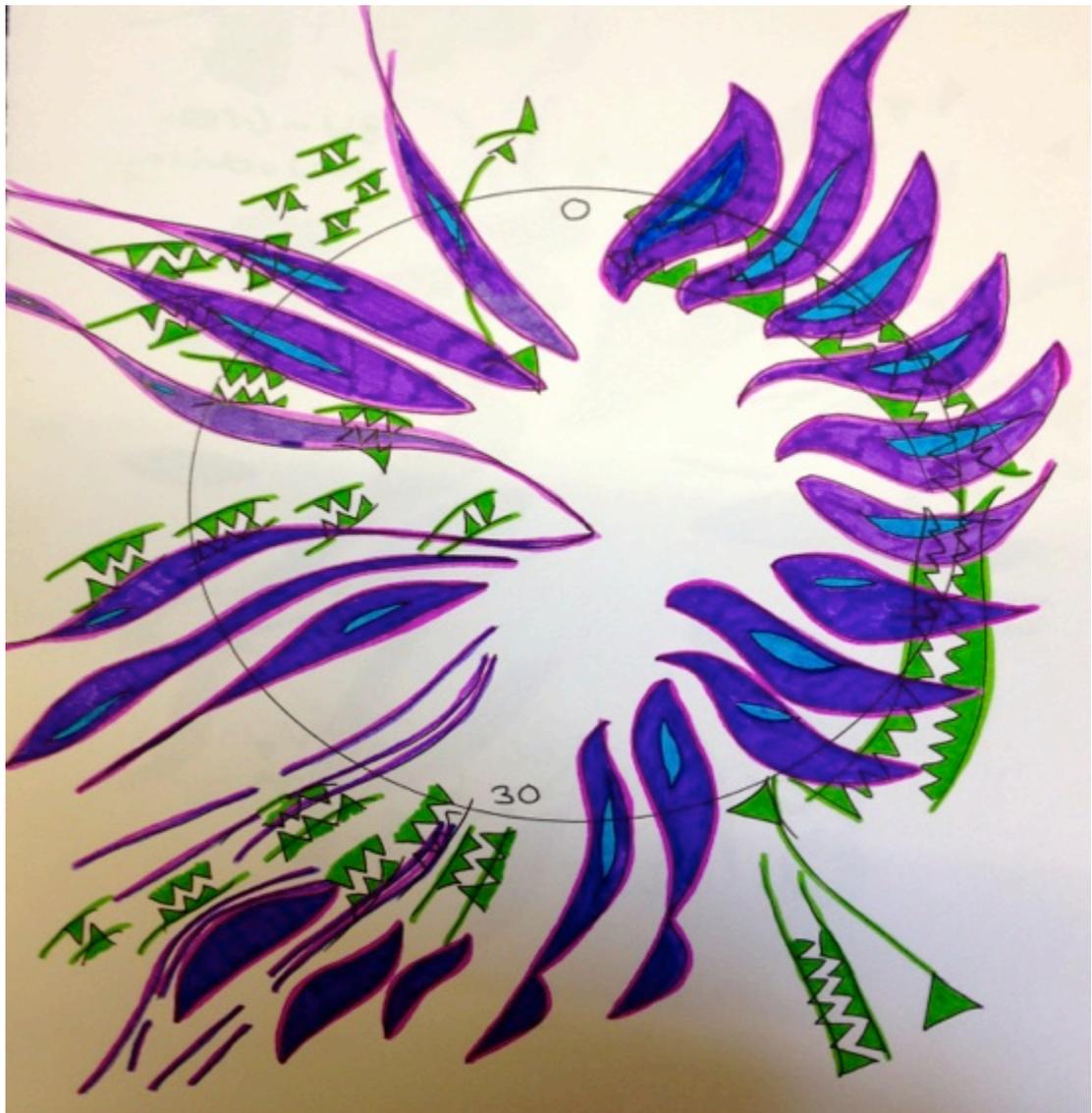
No comments

Minute 9



No comments

Minute 10



Participant comments

I see new things and musical visual relationships with each viewing.

Minute 11

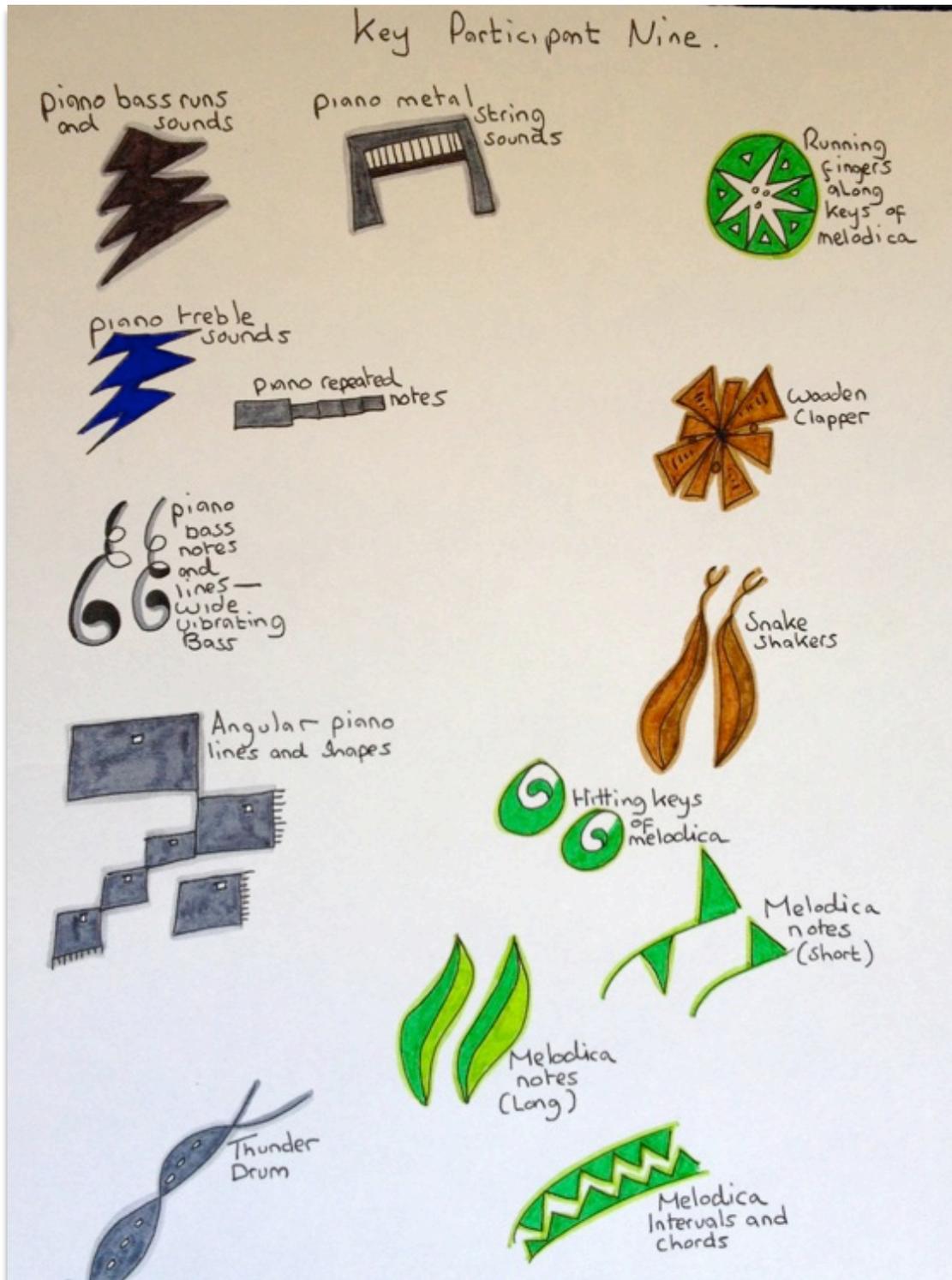


Participant comments

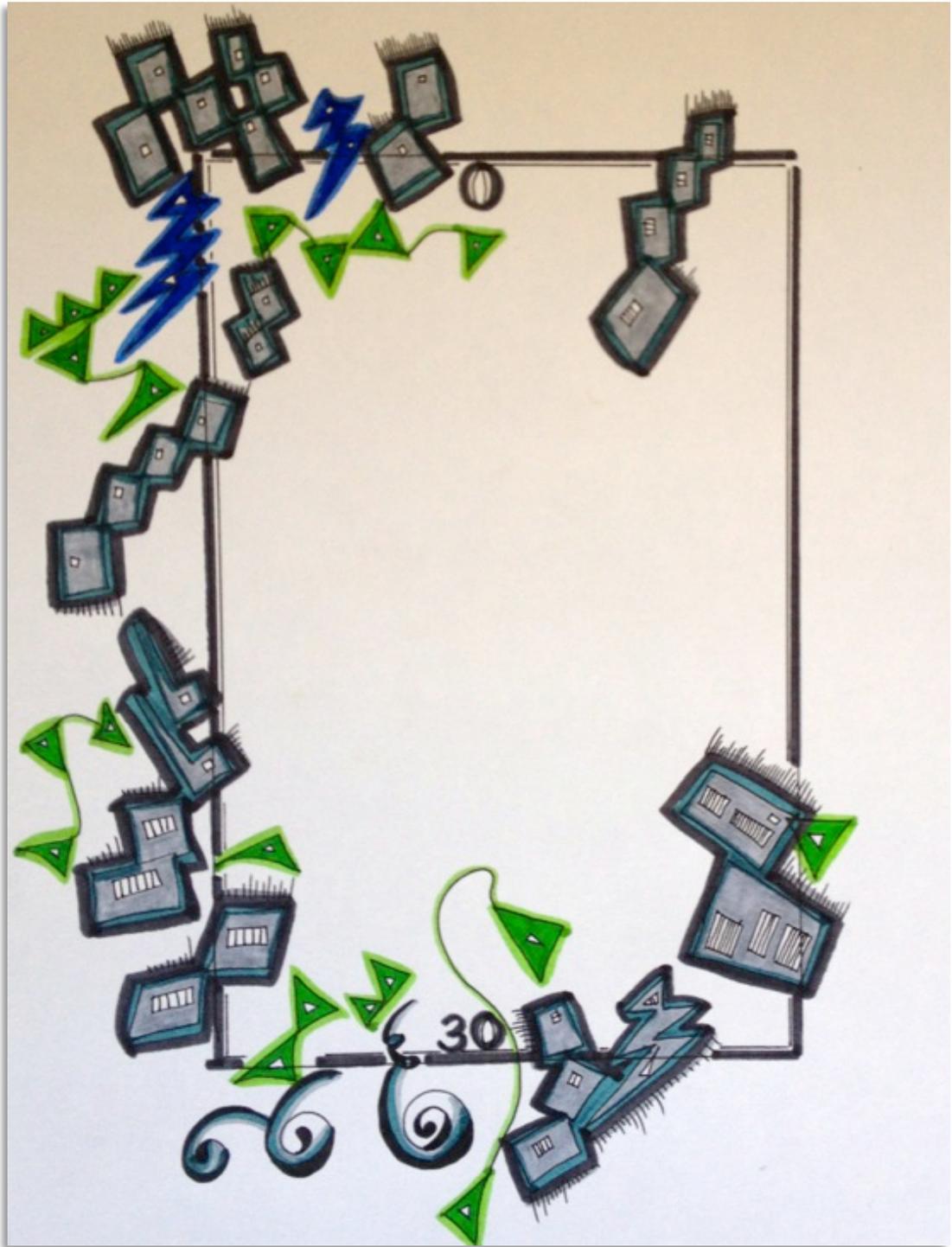
It was really nice playing with you - hopefully we can do it again sometime!

1.4.9 Starling – Graphic Score and Key

The score created in response to the music with Starling shows five one-minute sections with a key.



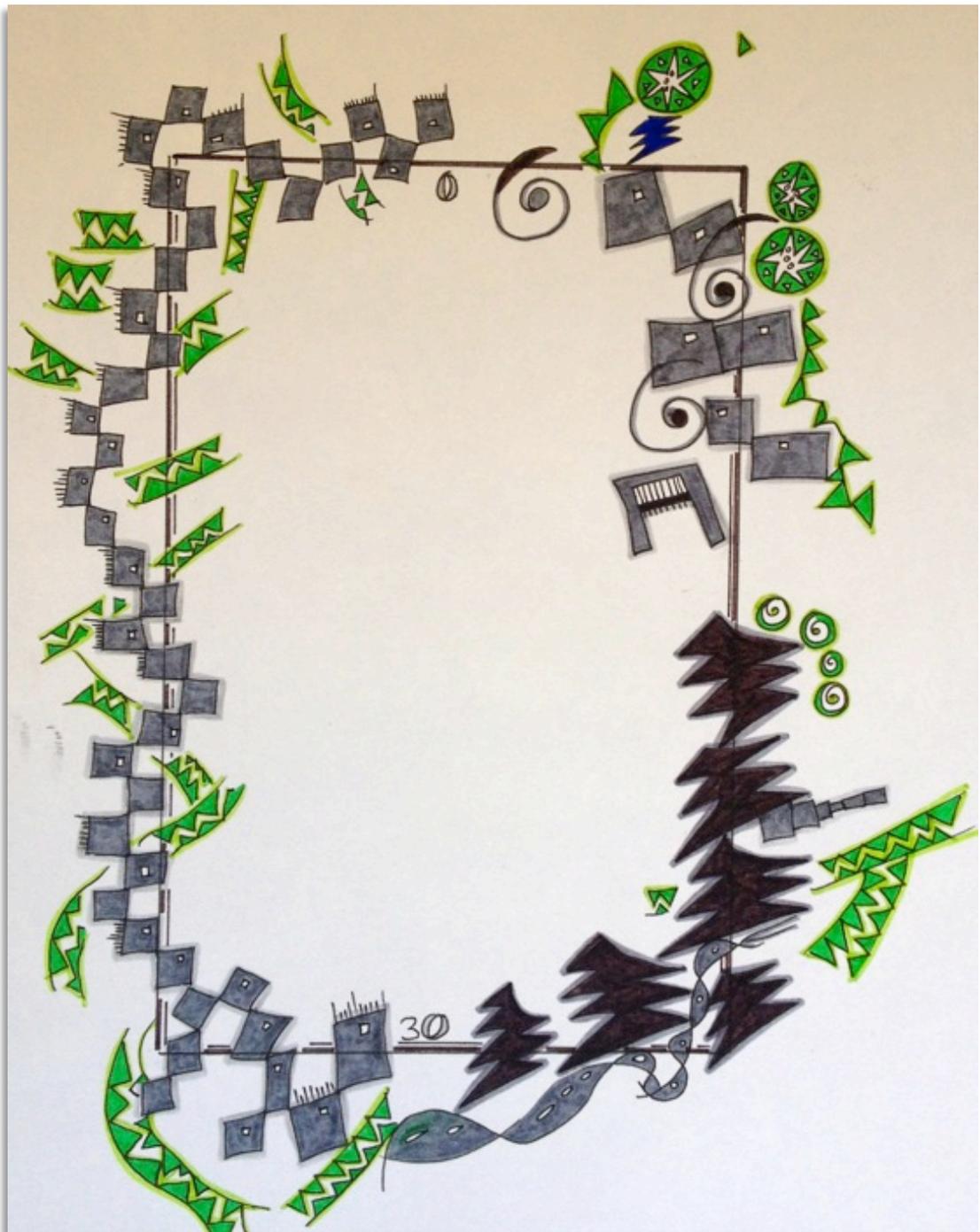
Minute One



Participant comments:

I find it hard to place the first couple of trial notes with the start to the duo with melodica. Maybe this is because I know they were trial notes? I am assuming this starts at like 1:00? I keep confusing the plucked piano sounds with the bass sounds image. Keep having to correct myself with that and I think this keeps making me loose position. Don't know why I am doing that. I find It easier to follow melodica line actually for reference to entries.

Minute Three



Participant Comments:

*ha-ha waited on this page for way to long the track ended!
I think I misjudged the running the keys on the melodica
sounds and this put me in the wrong spot.*

Minute Four



Participant comments:

Found myself again with the entry of the new sounds. Changes in colour seem to help me because they draw my eye if I hear a new sound and then realise I am in the wrong place.

Minute Five



Participant comments:

Overall I think my biggest difficulty is that I can contextualise the sounds that I am hearing with the knowledge of the action needed to create them, especially on my part. So, the memory of my motor actions means that I think I hear these sounds in more depth, residual harmonics, overtones, sympathetic buzzing, and therefore look for too much detail in the piano scores. I then found it much easier to follow your part, since there is less motor connection there to what I am hearing and I can equate the visual more easily with the sounds. I really like the scores and find them easy to follow, but as soon as something went wrong I found it hard to relocate my place until a very new sound entered. I think I also have a weird perception of time and I always thought time was moving much slower so ended up usually about a page behind the real 'time' and had to remember to keep pushing myself ahead.

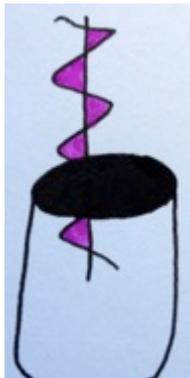
1.4.10 Chaffinch – Graphic Score and Key

The score created in response to the music with Rose is shown in twelve one-minute sections, with accompanying key. Masking tape was used in some areas to cover over mistakes in the drawing.

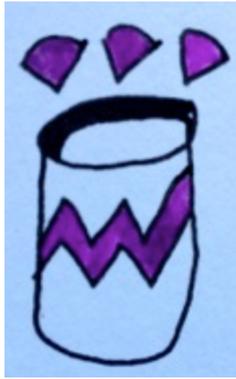
Graphic Score Key Participant Number Ten



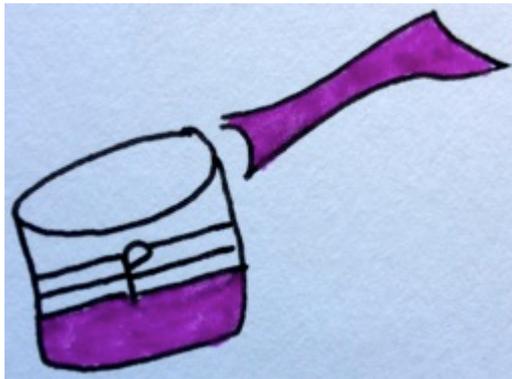
Thunder Drum Shaken



Thunder Drum shaken holding wire only



Thunder Drum popping on end, with flat of hand



Thunder Drum Very Quiet, held in hand



Vocal humming with pitches



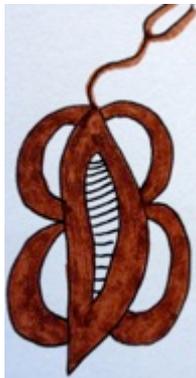
Tongue Clicking



Shake Shakers (long wooden instruments with metal cymbals)



Snake Shakers played with sharp accent



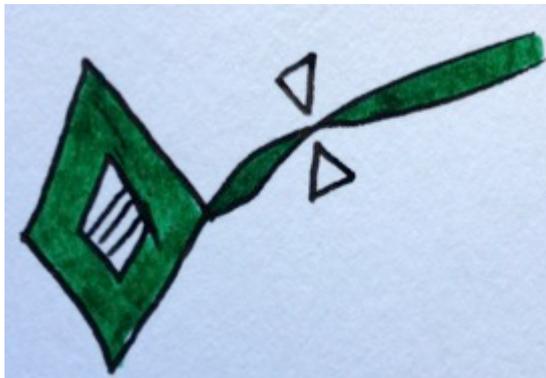
Shake Shakers hit together



Desk Bell



Rocking Desk Bell



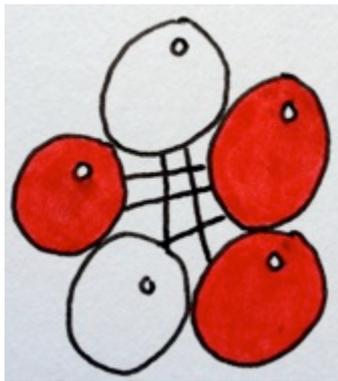
Melodica notes (if sustained with a tail)



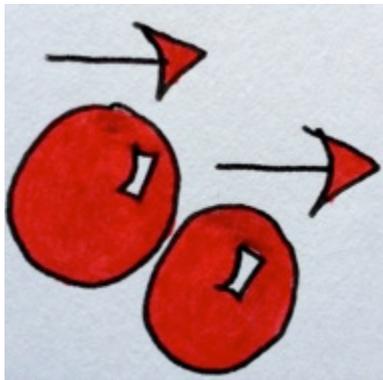
Melodica notes played together



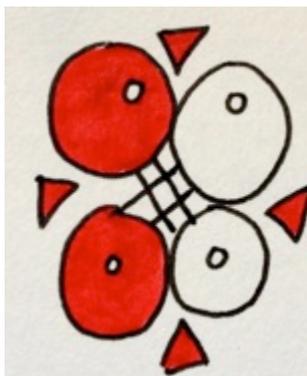
Clicking Keys of Melodica



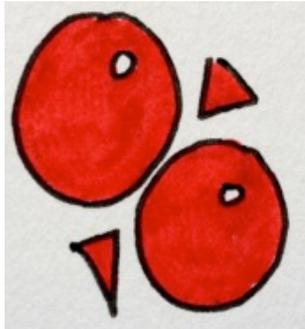
Small Bell Ring



Bell Ring - Louder



Bell Ring - Accented

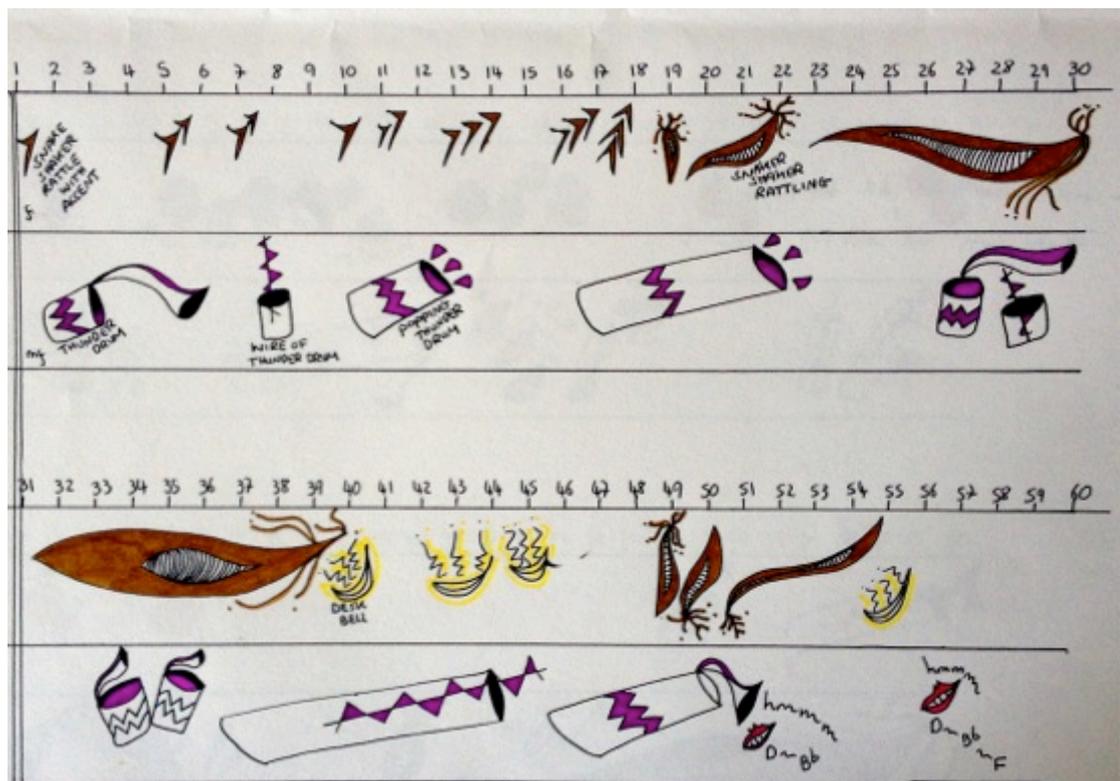


Bell Ring - Loud and Accented

Graphic Score
Number 10 (CT)
Becky White
PhD The University of the West of England
August 2018

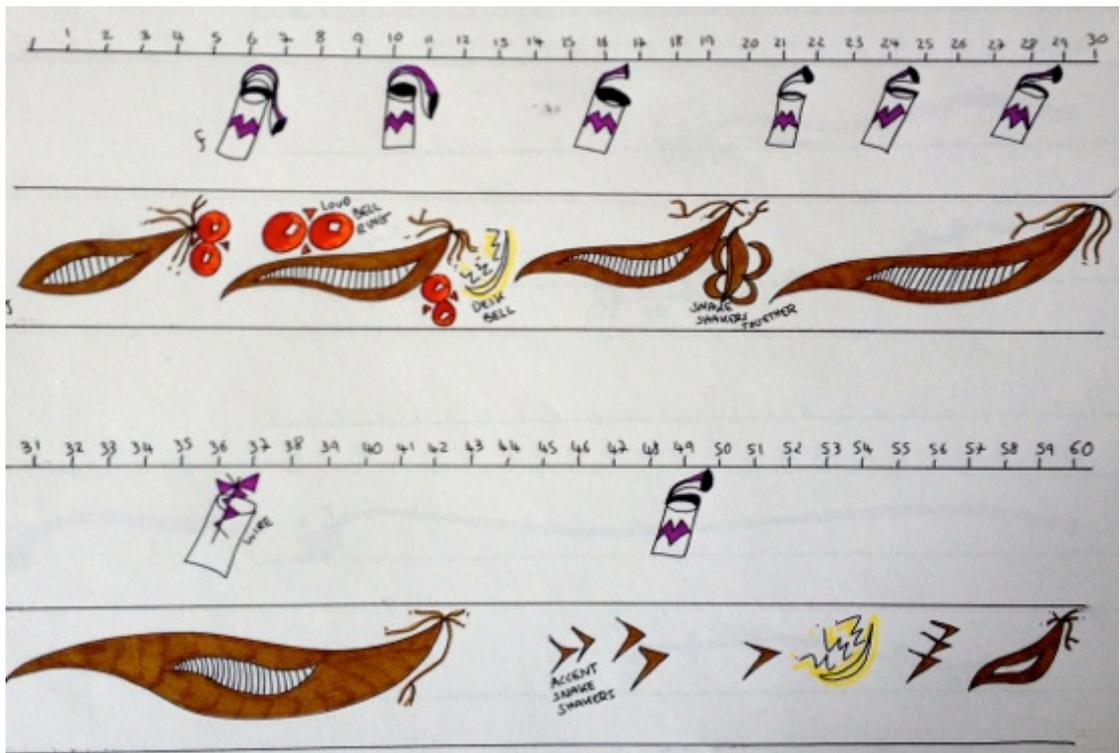
Timeline - shown in seconds
 Top line - participant (beginning with snake shaker)
 Next line - researcher (beginning with thunder drum)

Minute 1:



No comment

Minute 3:



No comment

Minute 4:

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30

31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60

VERY QUIET THUNDER DRUM

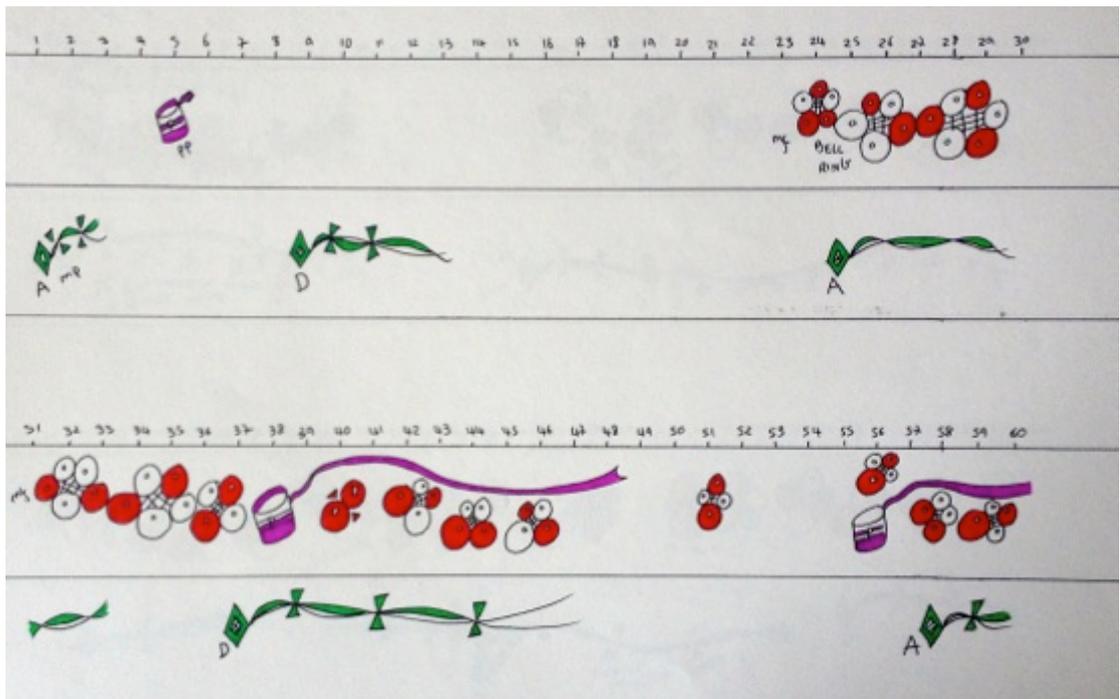
PUTTING SOME SHAKES ON TABLE

VERY QUIET MELODICA
fff

LOUDER mp

No comment

Minute 5:



No comment

Minute 6:

The image shows a handwritten musical score on a staff with a numbered scale from 1 to 60. The notation is divided into two main sections: measures 1-30 and measures 31-60.

Measures 1-30:

- Measures 1-15: Labeled "SHAKING BELL RING (mf)". The notation consists of red circles with arrows pointing in various directions, representing rhythmic patterns.
- Measures 16-30: Labeled "f LOWER ACCENT". The notation continues with red circles and arrows, with some notes marked with an accent.
- Measures 1-30 (lower staff): Labeled "CLICKING MELODICA KEYS AND QUIET NOTE". The notation features a green line with triangles pointing up and down, representing melodic movement. Notes are marked with "A" and "Low G".

Measures 31-60:

- Measures 31-45: Labeled "f LOWER ACCENT". The notation consists of red circles with arrows, with notes marked with an accent.
- Measures 46-60: Labeled "PULSED MELODICA NOTES". The notation features a green line with triangles pointing up and down, with notes marked with "D" and "A".

No comment

Minute 7:

The image shows two staves of hand-drawn musical notation. The first staff is numbered 1 to 30. Measures 1-15 contain a sequence of circles with red and white dots, labeled 'SHAKING BELLS QUIET'. Measures 16-20 are blank. Measures 21-25 contain a purple wavy line with a drum icon, labeled 'mf THUNDER DRUM'. Measures 26-30 contain green diamond shapes connected by a wavy line, with 'D' and 'C' labels. The second staff is numbered 31 to 60. Measures 31-35 contain purple wavy lines and drum icons. Measures 36-40 contain circles with red and white dots. Measures 41-47 are blank. Measures 48-56 are yellowed out. Measures 57-60 contain green diamond shapes connected by a wavy line, with 'F' and 'C' labels. A red box labeled 'CLICK' is drawn around a diamond in measure 57. A red box labeled 'PULSED NOTES' and another red box labeled 'CLICK' are drawn around the diamond shapes in measures 58-60. The word 'LOUDER' is written in a red box in measure 32.

No comment

Minute 8:

The image shows two staves of handwritten musical notation. The first staff is numbered 1 to 30. It features a pink ribbon-like graphic with a drum icon and the letter 'P' (piano) above it. Below the staff, there are green diamond-shaped notes on a G-C staff. The first section is labeled 'PULSED AND VERY QUIET' and 'mp'. The second section is labeled 'LONG NOTES SUSTAINED VIBRATO' and 'C'. The third section is labeled 'CLICK' and 'mp'. The second staff is numbered 32 to 60. It features a pink ribbon-like graphic with a drum icon and the letter 'P' above it, labeled 'THUNDER DRUM'. Below the staff, there are green diamond-shaped notes on a G-D staff. The first section is labeled 'mp' and 'CLICK'. The second section is labeled 'G' and 'D'. The third section is labeled 'mp' and 'G -> P C'. There are also some yellowed-out areas on the paper.

No comment

Minute 9:

The image shows two staves of handwritten musical notation on a staff with a ruler. The first staff is numbered 1 to 30. It contains three yellow banana-like notes with stems, each labeled with a letter (G, B, G) and a clef (my). Below the staff are several diamond-shaped notes, some labeled with letters (G, B) and clefs (my). The second staff is numbered 31 to 60. It contains a yellow banana-like note labeled 'A' and 'f', followed by several yellow banana-like notes with stems, some labeled with letters (my). Below the staff are several diamond-shaped notes, some labeled with letters (C, A) and clefs (my). A red 'CLICK' sticker is placed on the staff between measures 38 and 40, and another 'CLICK' sticker is placed on the staff between measures 58 and 60.

No comment

Minute 10:

The image shows a handwritten musical score on a staff with a ruler at the top, numbered 1 to 30. The score is divided into two systems. The first system (measures 1-30) features a series of notes with stems and flags, some marked with 'G' and 'click'. Dynamics include 'mp' and 'mf'. The second system (measures 31-60) features notes with stems and flags, some marked with 'D', 'B', and 'G'. Dynamics include 'mf' and 'f'. There are also drawings of purple containers and a yellow object.

No comment

Minute 11

The image shows a handwritten musical score on a staff with 30 numbered measures. The notation is as follows:

- Measures 1-10: Yellow banana-like symbols with stems and leaves. Labels 'F' and 'pp' are present.
- Measures 11-15: Yellow banana-like symbols. Labels 'D', 'C', and 'pp' are present.
- Measures 16-20: Yellow banana-like symbols. Labels 'D', 'C', and 'pp' are present.
- Measures 21-25: Yellow banana-like symbols. Labels 'D', 'C', and 'pp' are present.
- Measures 26-30: Yellow banana-like symbols. Labels 'D', 'C', and 'pp' are present.

Below the staff, there are additional symbols and labels:

- Labels 'Low', 'High', 'D', 'C', 'G', 'F', 'PPP', and 'ppp'.
- Red boxes containing the word 'CLICK'.
- Green diamond symbols.
- Green wavy lines.

No comment

Minute 12:



No comment