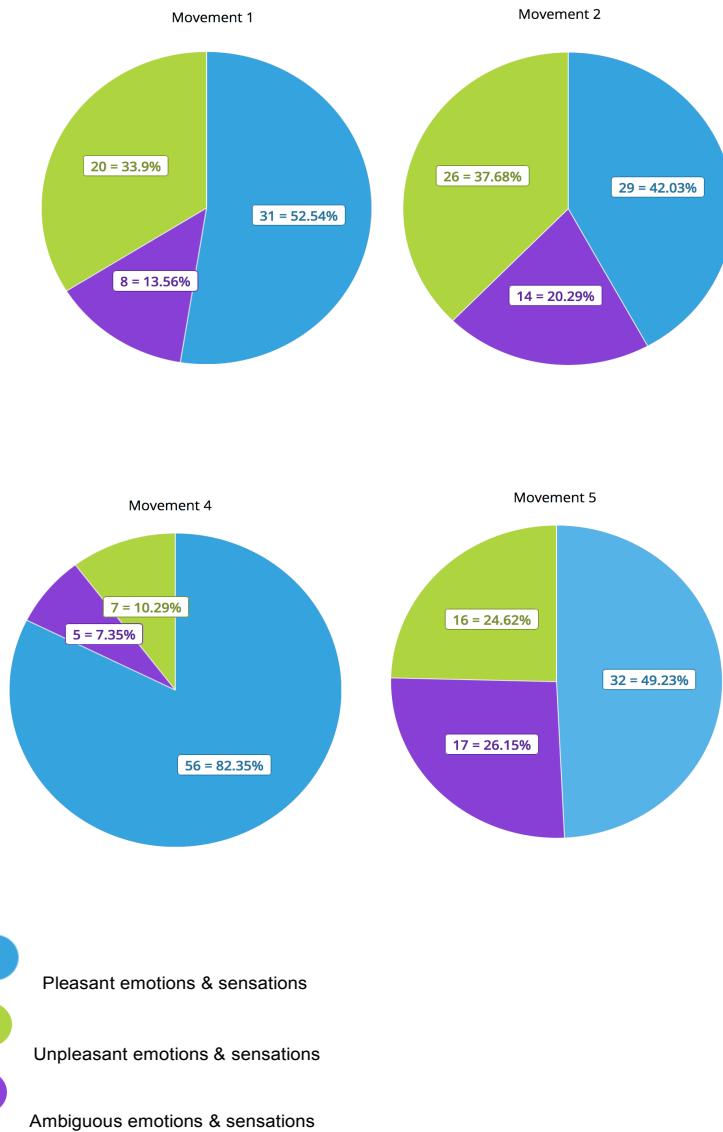


## CONNECTIONS 2022

## TRIALS RESULTS CHARTS



Connections is a research and development project by composer Isa Suarez with the participation of vulnerable adults, choirs and therapists. It is a musical exploration of sonic frequencies and voice and the ways they can affect emotions. The aim is to create choral music that alleviates anxiety, promotes relaxation and improves mental and physical well-being.

[connectionsproject2022@gmail.com](mailto:connectionsproject2022@gmail.com)

<https://isasuarez.com/portfolio-item/connections>



Supported using public funding by

**ARTS COUNCIL  
ENGLAND**

*Connections is a project developed in partnership with The Choir with No Name and Arlington (part of One Housing/ Riverside)*

The starting point of the project was to examine/record sounds used during complementary therapy practices (gongs, rattles, chants, drumming patterns, tuning forks, singing bowls). I then worked with an acoustician to convert them into 100s sonic frequencies and used them to compose/record 4 initial works and tones sung by The Ora Singers. I was keen to use the human voice to create something different from electronic music relaxation tracks found online.

During the composition process, I observed and experimented with these tones and their frequency' ranges, harmonics, pitch, loudness, envelopment, pause, resonance, dissonance to produce ambient and uplifting vocal pieces.

I deepened my creative engagement with how music derived from these frequencies can be used as a way of articulating complex feelings in therapeutic and community settings. The engagement process offered individual and collective participation for vulnerable adults, therapists and choir conductors through sound-scores experienced online, live and during music workshops, singing sessions, performances and dance movement therapy.

Initial pieces were made accessible online via <https://soundcloud.com/connections2022/sets> and emailed directly to participant groups. A testing 'kit' was devised and provided for therapists, choir conductors and participants to test responses to the work (see attached sample).

105 trials took place with 99 eligible trials in total. 25 vulnerable adults took part in the trials, through listening to the pieces and responding to a testing 'kit', to measure the impact that these choral pieces may have on their physical responses and emotions. Participants included: adults from The Choir with No Name/London and Arlington House as well as other adults. In addition, a dance movement therapist and her neuro-divergent child-patient took part in this trial during her therapy session.

Following their feedback and input, I developed the pieces further: frequencies were softened and shifted; musical instrumentation was added and arrangements were adjusted.

The project was presented as part of the Arlington House Annual Art event and at The World Homelessness Day event to 130 audience members and 25 representatives from 13 organizations from the Homelessness and Mental Health sectors. The Choir with No Name/London performed a new vocal piece especially arranged by their choir conductor in response to the Connections compositions.

The responses to the 4 musical movements are generally positive. The trials results offer not just one perspective or a specific/single response; instead they show a pattern and a range of responses. Movement 4 -which is more "harmonious" than 1 and 2- was the most positive. Movement 5 showed a similar outcome to Movement 1. The project's aim was achieved by allowing participants to experience a range of emotions in safe and supportive environments and to create positive changes in their emotional states – while they engaged with my new choral music compositions.

Further information about this research can be found here below including the trials' results data, the evaluation by Dr Michaela Ross and a review by award-winning acoustician Paul Gillieron.

## Dr Michaela Ross's evaluation

Michaela Ross has been the Connections project consultant.

*She is also an artist and the lead researcher at Bethlem Gallery as well as a Visiting research fellow at the Dpt of Global Health and Social medicine - Kings College.*

Ongoing evaluation was an intrinsic part of the project. An engaging feedback framework was developed that allowed participants to individualize their responses to the sound-scores. 105 trials took place with 99 eligible questionnaires in total. This evaluation process not only contributed to the refinement of the sound-scores and invited participants to have a creative input into the works - but also allowed participants to articulate complex and contradictory feelings which was in itself therapeutic. Staff observations of participants' levels and nature of engagement were very positive: for example, the dance movement therapist stated that the Connections pieces could be used as a tool during her dance movement therapy sessions.

The overall aim of the project was to improve mental and emotional wellbeing amongst the target groups (adults and also staff working in the mental health sector) and to create positive changes in participants' emotional states while they engage with unique musical compositions and creative activities (performance, music workshops and feedback sessions). This aim was achieved by allowing participants to experience a range of emotions in a safe and supportive environment.

Some of the most important outcomes from this project were 'soft' outcomes – internal changes to the way people feel or think that are difficult to observe directly. Staff were able to note changes in behavior in their clients. The evaluation included different perspectives including self-reporting and staff observation and a mix of qualitative and quantitative methods (see attached trials results and the test-kit' prototype).

PG is an award-winning acoustician. He has been the 'sonic' consultant during this research project.

Initially, dominant frequencies were extracted from a number of spoken and musical healing sessions, recorded by individual healers, using spectrum analysis software.

These frequencies were used to create musical compositions, using voices, by Isa Suarez (IS).

Historically, sound and rhythm have been used as healing forces going back to shamanic practices, existing today and possibly earlier much in Paleolithic times.

In history and in recent years, there have been many studies on the effects of single frequencies (sine waves) on the mind/body (emotional and sensational).

Many world cultures describe the physical and spiritual makeup of the mind/body and how it may be affected in different ways by sound and movement. Attempts have been made to integrate all of this knowledge.

Mechanisms associated with sound/rhythm and healing are not clearly understood.

Current knowledge could be described largely as theoretical.

This is a review of the latest recorded pieces issued by IS and a response to the listeners feedback, based on the trials results charts.

#### **Movement 1 Sung Vocal multiple notes**

A microtonal piece based on gongs' frequencies and singing bowls tones

A set of moving short chords, moving from consonance to dissonance and back

#### **Movement 2 Sung Vocal multiple notes**

A microtonal piece based on gongs' frequencies and singing bowls tones

A set of moving short chords, moving from consonance to dissonance and back

#### **Movement 4 Sung Vocal multiple notes**

A set of moving short chords, mostly "harmonious", single 4 note vocal melody superimposed later; based on frequencies and tones taken from chants, spoken word, singing bowls, drumming patterns and/or tuning forks

**Movement 5 Spoken Sung** two-word invented phrase repeated, sung melody appears later; based on frequencies and tones taken from chants, drumming patterns, singing bowls and/or tuning forks

These choral pieces were trialed through listening and responding to a bespoke testing-'kit' to measure their impact on participants 'physical responses and emotions.

The 99 subjective responses of a group of 26 listeners was divided by IS - into Emotions and Sensations, each subdivided into Pleasant/Unpleasant/Ambiguous.

Emotions are taken to be mental responses, sensations are taken to be physical responses.

A simple statistical study has been used to evaluate responses to the 4 pieces, based on the categories above –

a/ Overall responses to the 4 musical movements are generally positive.

b/ Movement 4, which was more "harmonious" than 1 and 2 was the most positive.

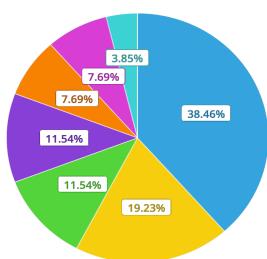
c/ Movement 5, showed a similar outcome to Movement 1.

See detailed PG comments below

# MOVEMENT 1 TRIALS RESULTS

## Movement 1: 27 Pleasant emotions

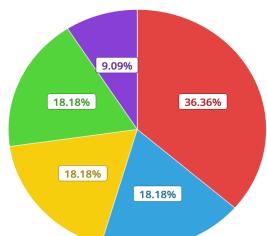
Part	%
●	38.46%
● Calm	38.46%
● Serenity	19.23%
● Joy	11.54%
● Empathy	11.54%
● Release	7.69%
● Focus	7.69%
● 21 other emotions*	3.85%
●	3.85%
●	3.85%
●	3.85%
Total (48 responses)	100%



\*21 other emotions: Soothing, Thoughtful, Curious, Uplifting, Harmonious, Grand, Wholesome, Insight, Contrasting, Delight, Trepidation, Peace, Elevation, Felt like Home, Changing, Engagement, Meditative, On a journey, Elation, Pleasant, Turbulent but happy like a spirit pulling you down but happy

## Movement 1: 16 Unpleasant emotions

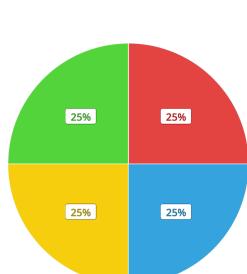
Part	%
● Tension	36.36%
● Edgy	18.18%
● Anxious	18.18%
● Jarring	18.18%
● 12 other emotions*	9.09%
●	9.09%
●	9.09%
●	9.09%
●	9.09%
●	9.09%
●	9.09%
Total (22 responses)	99.99%



\* 12 other emotions: Disturbing, Decline, Depressive, Sombre, Annoying, Ominous, Not Happy, Exasperation, Harsh, Too mental, Unpleasant, Moving forward but disjointed

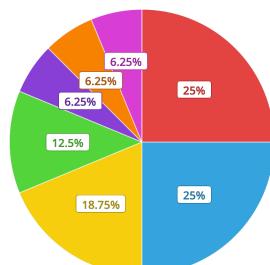
## Movement 1: 4 Pleasant sensations

Part	Value	%
● Too loud	●	25%
● Piercing	●	25%
● Grating	●	25%
● A bit wobbly	●	25%
●	●	25%
●	●	25%
●	●	25%
●	●	25%
●	●	25%
●	●	25%
●	●	25%
Total (4 responses)	●	100%



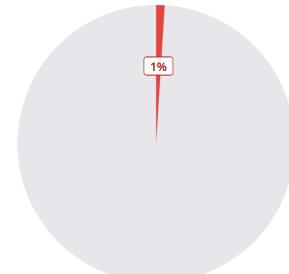
## Movement 1: 7 Ambiguous emotions

Part	%
● Intrigue	25%
● Anticipation	25%
● Melancholy	18.75%
● Mysterious	12.5%
● Strange	6.25%
● Bafflement	6.25%
● Astonishment mixed with delusion of not being there	6.25%
Total (16 responses)	100%



## Movement 1: 1 Ambiguous sensation

Part	%
● Vibrating	1%
Total (1 response)	1%



## MOVEMENT 1 TRIALS RESULTS

### Comment:

**31 subjects**

**Pleasant emotions – calmness, serenity and joy dominate the first cohort**  
**Pleasant sensations – expansion, stillness and spaciousness dominate**

**20 subjects**

**Unpleasant emotions – tension, edginess, anxious, jarring dominate – second cohort**  
**Unpleasant sensations – too loud, grating, jarring, a bit wobbly all equally significant**

**8 subjects**

**Ambiguous emotions – intrigue, anticipation dominate – third cohort**  
**Ambiguous sensations – almost none**

### Conclusion:

**Pleasant emotions and sensations dominate ~53%**

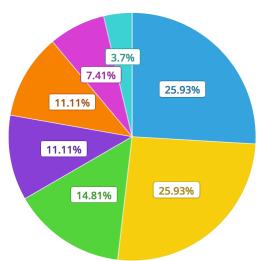
**Unpleasant emotions and sensations ~34%**

**Ambiguous emotions and sensations ~13%**

## MOVEMENT 2 TRIALS RESULTS

Movement 2 : 20 Pleasant emotions

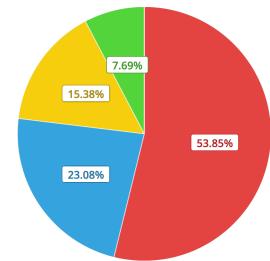
Part	%
Part	100%
Part	25.93%
Part	25.93%
Part	14.81%
Part	11.11%
Part	11.11%
Part	7.41%
Part	3.7%
Part	14 other emotions*
Part	11.11%
Part	11.11%
Part	14.81%
Part	25.93%
Part	25.93%
Total (40 responses)	100%



\*14 other emotions: Focus, Solemn, Grave, Feel sane, Enjoyable, Soothing, Excitement, Stubborn Inner Determination, Pleasure, Resolve, Higher feeling, Delight, Joy, Comfort when you are upset

Movement 2: 18 Unpleasant emotions

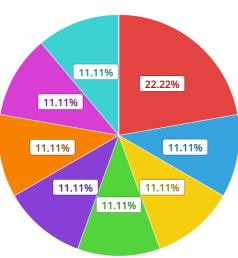
Part	%
Tension/Tense	53.85%
Disturbing	23.08%
Edginess	15.38%
15 other emotions	7.69%
Part	100%
Total (27 responses)	100%



\*15 other emotions: Disjointed; Disharmonious; Unsatisfying; Sad expression; Anger; Slightly upsetting; Felt like I had to hide my emotions (but I liked the piece); Impatience; Suppressed frustration; Exasperation; Morbid; Anxiety; Frustration; Unpleasant at times; Scary

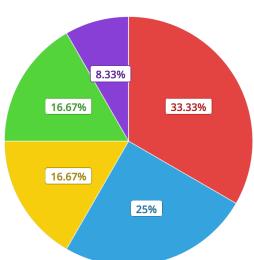
Movement 2: 8 Unpleasant sensations

Part	%
Monotonous	22.22%
Tense Paradigm Shift	11.11%
Cold	11.11%
Harshness	11.11%
Loss/Death	11.11%
Tears	11.11%
Like air raid siren	11.11%
Dissonance	11.11%
Part	100%
Total (9 responses)	99.99%



Movement 2: 12 Ambiguous emotions

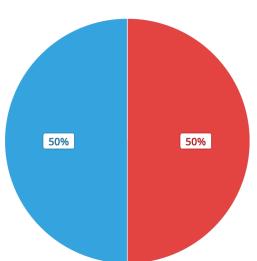
Part	%
Anticipation	33.33%
Intrigue	25%
Melancholy	16.67%
Bafflement	16.67%
8 other emotions*	8.33%
Part	100%
Total (19 responses)	100%



\*8 other emotions: Searching, never ending, no ending; Rush; Where Am I?; Mystery; Wanted to feel more peace in first part; Weird, strange; Suspense; Plain

Movement 2: 2 Ambiguous sensations

Part	%
Unfinished	50%
Other worldly	50%
Part	100%
Total (2 responses)	100%



## MOVEMENT 2 TRIALS RESULTS

Comment:

**29 subjects**

**Pleasant emotions – calmness, serenity and joy dominate the first cohort**

**Pleasant sensations – expansion, stillness and spaciousness dominate**

**26 subjects**

**Unpleasant emotions – tension, edginess, anxious, jarring dominate – second cohort**

**Unpleasant sensations – too loud, grating, jarring, a bit wobbly all equally significant**

**14 subjects**

**Ambiguous emotions – intrigue, anticipation dominate – third cohort**

**Ambiguous sensations – almost none**

Conclusion:

**Pleasant emotions and sensations slightly dominate ~42%**

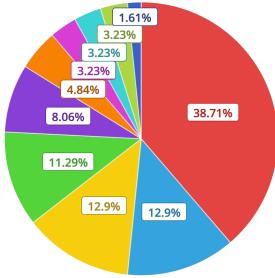
**Unpleasant emotions and sensations ~38%**

**Ambiguous emotions and sensations ~20%**

## MOVEMENT 4 TRIALS RESULTS

### Movement 4: 28 Pleasant emotions

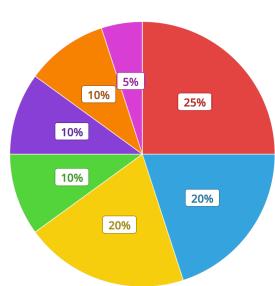
Part	%
Calm/Relaxation	38.71%
Joy/Happiness	12.9%
Serenity	12.9%
Delight	11.29%
Peaceful	8.06%
Release	4.84%
Excitement	3.23%
Soothing	3.23%
Focus	3.23%
19 other emotions*	1.61%
Total (80 responses)	100%



\*19 other emotions: Hope; Engaging; Some tension Resolve; I feel like in an Ireland with a Irish choir; Meditative; Hypnotic; Amusement; Awe; Bliss; Felt anxious at the start then more peaceful and serene; Uplifting; Elation; Exultation; Coming together; Rebirth; Stability; Solemnity; Some sort of spirituality; Heroic Interlude

### Movement 4: 28 Pleasant sensations

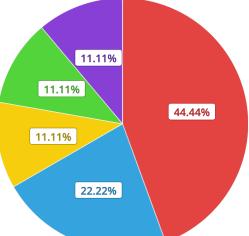
Part	%
Pleasure	25%
Expansion	20%
Softness	20%
Heavens	10%
Spaciousness	10%
Beautiful	10%
22 other sensations*	5%
Total (41 responses)	100%



\*22 other emotions: Healing; Sunrise; Bright; Therapeutic; Surprise; A journey somewhere glorious, the afterlife in all its glory; Timeless; Gorgeous; Angelic; Good for end of life care, palliative care; Floating; The world turns a glorious red; Guidance; Home connected my stars and sunbeams; Restful; Shining bright different colours; Light; Protective; Home sick and underwater fantasy, moving to the deepest rebirth; Wise; Connection with my inner self; I am with my mum

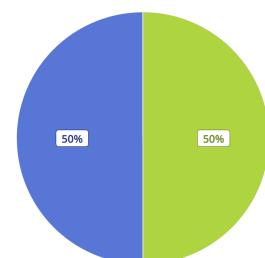
### Movement 4: 5 Unpleasant emotions

Part	%
Tension (to peace)	44.44%
Edginess	22.22%
Impatience	11.11%
Exasperation	11.11%
Anxiety @the start	11.11%
Total (9 responses)	99.99%



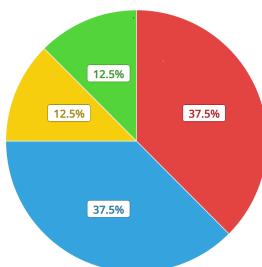
### Movement 4: 2 Unpleasant sensations

Part	%
Harshness	50%
Discordance	50%
Total (2 responses)	100%



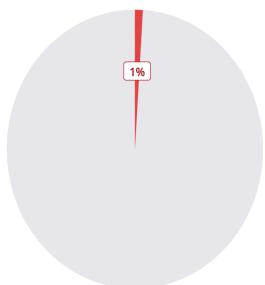
### Movement 4: 4 Ambiguous emotions

Part	%
Intrigue	37.5%
Melancholy	37.5%
Bafflement	12.5%
Anticipation	12.5%
Total (8 responses)	100%



### Movement 4: 1 Ambiguous sensation

Part	%
Daylight, windy, cold, midnight	1%
Total (1 response)	1%



## MOVEMENT 4 TRIALS RESULTS

**Comment:**

**56 subjects**

**Pleasant emotions – calmness, serenity and joy dominate the first cohort**

**Pleasant sensations – expansion, stillness and spaciousness dominate**

**7 subjects**

**Unpleasant emotions – tension, edginess, anxious, jarring dominate – second cohort**

**Unpleasant sensations – too loud, grating, jarring, a bit wobbly all equally significant**

**5 subjects**

**Ambiguous emotions – intrigue, anticipation dominate – third cohort**

**Ambiguous sensations – almost none**

**Conclusion:**

**Pleasant emotions and sensations dominate ~82%**

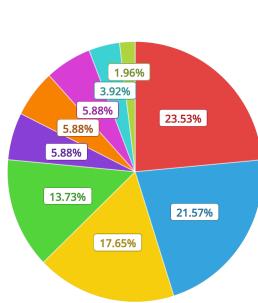
**Unpleasant emotions and sensations ~10%**

**Ambiguous emotions and sensations ~7%**

## MOVEMENT 5 TRIALS RESULTS

### Movement 5 : 20 Pleasant emotions

Part	%
Joy	23.53%
Delight	21.57%
Amusing Comical	17.65%
Engaging	13.73%
Release	5.88%
Relaxation	5.88%
Fun	5.88%
7 other emotions*	3.92%
6 other emotions*	1.96%
0%	0%
Total (68 responses)	100%

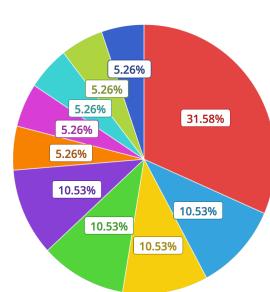


\*7 other emotions @ 3.92% = Cheerful; Mischief; Playful; Happy; Excitement; Serenity; Calm

\*6 other emotions @ 1.96% = Surprise; Focus; Thoughtful; Courageous voices; Uplifting; Enjoyable

### Movement 5: 12 pleasant sensations

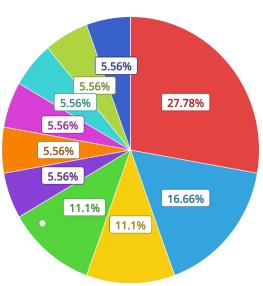
Part	%
Pleasure	31.58%
Bouncy	10.53%
Softness	10.53%
Expansion	10.53%
Spaciousness	10.53%
Rhythrical	5.26%
Want to join	5.26%
Warm	5.26%
Cosy	5.26%
3 other sensations*	5.26%
Total (21 responses)	100%



\*3 other emotions: Ancient/Ancestors (type of music); It's like being chased out of a shop by a choir of voices; It would be helpful for someone if they are upset or worried to make them feel better

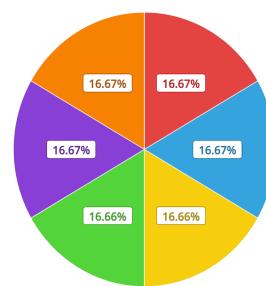
### Movement 5: 10 Unpleasant emotions

Part	%
Tension	27.78%
Annoying	16.66%
Impatience	11.1%
Edginess	11.1%
Stressfull	5.56%
Aggravating	5.56%
Urgency Alarm	5.56%
Dysfunctional	5.56%
Exasperation	5.56%
Horrible	5.56%
Total (18 responses)	100%



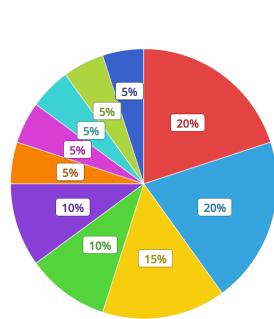
### Movement 5: 6 Unpleasant sensations

Part	%
Dragging	16.67%
Boring	16.67%
Complex	16.66%
A torture	16.66%
Too masculine	16.67%
Too fast too harsh	16.67%
-it was rattling-	0%
-my brain a bit	0%
0%	0%
0%	0%
Total (6 responses)	100%



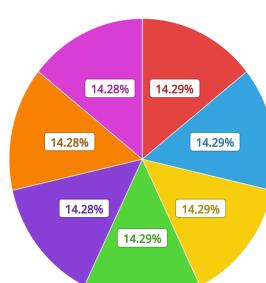
### Movement 5: 10 Ambiguous emotions

Part	%
Weird/Odd	20%
Intrigue	20%
Anticipation	15%
Melancholy	10%
Mystery	10%
Divilment	5%
Distraction	5%
Encitment	5%
Bafflement	5%
Drama	5%
Total (20 responses)	100%



### Movement 5: 7 Ambiguous sensations

Part	%
Heartbeat	14.29%
Extra-terrestrial	14.29%
Quite addictive	14.29%
Made me want to escape	14.29%
A regular day routine	14.28%
Comedic darkness to a more harrowing sense of danger	14.28%
Disappointment: something chasing you from the upside down in creamy milk colours	14.28%
0%	0%
0%	0%
0%	0%
Total (7 responses)	100%



## MOVEMENT 5 TRIALS RESULTS

### Comment:

**32 subjects**

**Pleasant emotions – calmness, serenity and joy dominate the first cohort**

**Pleasant sensations – expansion, stillness and spaciousness dominate**

**16 subjects**

**Unpleasant emotions – tension, edginess, anxious, jarring dominate – second cohort**

**Unpleasant sensations – too loud, grating, jarring, a bit wobbly all equally significant**

**17 subjects**

**Ambiguous emotions – intrigue, anticipation dominate – third cohort**

**Ambiguous sensations – almost none**

### Conclusion:

**Pleasant emotions and sensations dominate ~49%**

**Unpleasant emotions and sensations ~25%**

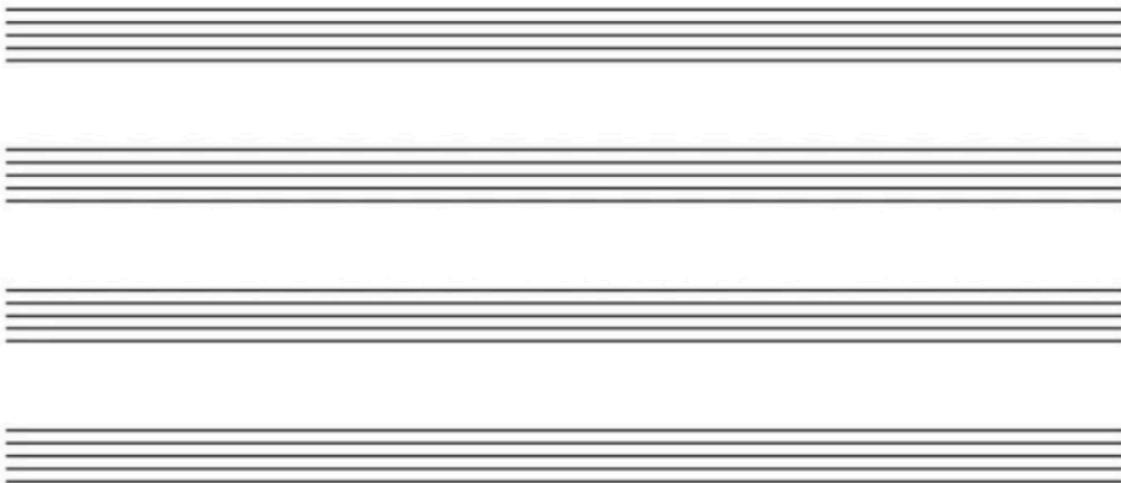
**Ambiguous emotions and sensations ~26%**

Testing-Kit used during the feedback / trials sessions:

## CONNECTIONS MUSIC FEEDBACK

Composition number :

1: As you listen to the composition, write a range of emotions or/and sensations and trace them on the template here below (see suggestions below and feel free to add your own)



exasperation  
engagement  
distraction  
serenity delight  
calm edginess  
pleasure  
anticipation relaxation  
surprise excitement joy bafflement  
awe amusement impatience  
melancholy intrigue  
focus tension

2: Choose a colour or a range of colours for this composition and mark it to the colour wheel



3: Feel free to include here below your comments or suggestions on how the piece could be further developed to enhance or change the experience you are having, for example: its pace, duration, vocal sounds, dynamics, musical instrumentation, etc...