THE UNIVERSITY of EDINBURGH
Edinburgh College of Art

DEPARTMENT OF MUSIC
THE UNIVERSITY OF HONG KONG 香港大學音樂系

Conference on
Interdisciplinary
Musicology

CIM22
'participation'

8 – 10 June 2022

Online & Edinburgh, UK

Proceedings

Nikki Moran & Youn Kim (Eds.)

European Society for the Cognitive Sciences Of Music

RMA ROYAL MUSICAL ASSOCIATION

50th sempre: Society for Education, Music and Psychology Research Anniversary

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Musicology

Journal of Interdisciplinary
Music Studies
disiplinlerarası müzik araştırmaları dergisi

MUSIC IN HUMAN AND
SOCIAL DEVELOPMENT
RESEARCH GROUP

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Foreword by CIM22 co-Chairs

It is with great pleasure that we present these proceedings of the 13th Conference on Interdisciplinary Musicology, CIM22: *Participation*. The conference, convened by the Society for Interdisciplinary Musicology, and co-Chaired by the Reid School of Music, ECA, The University of Edinburgh and the Department of Music at The University of Hong Kong, HK, took place in hybrid format, online and in-person at The University of Edinburgh, UK from 8-10 June, 2022. The rich programme included three plenary sessions featuring esteemed Keynote speakers and interdisciplinary Respondents; twelve parallel sessions of new research presentations; and a dedicated session of video flash-talks.

The theme of *Participation* is a defining aspect of musical experience, intersecting both material and theoretical issues in music scholarship and calling for interdisciplinary attention across the sciences and humanities. This discursive space, perhaps most conspicuously associated with Keil et al's (1987, 1995) dialogic conceptualisation of musical participation, has now fostered three decades of empirical and hermeneutic debate that remains central to current, critical work in music academia. Legitimizing the articulation of social and kinematic aspects of musical expression - values most prominent in popular musical art-forms - discourse on musical participation has directed empirical research into the actions whereby music takes shape in performative social life and mind.

Participation suggests various situations of interaction - from events of (face-to-face and online) community, to encounters imagined in solitude. In scientific music research, the ongoing legacy of what is now an extensive body of knowledge on expressive microtiming, co-ordination and joint action, for example, is complemented by the most current views in cognition, which accept that our comprehension of musical sound is shaped by participatory rather than individualistic processes.

As a theme, *Participation* also highlights music's integration into other domains of individual and social experience. Musical participation may be constrained by cultural and political identity and influenced by expressions of these within educational contexts. It takes form through varied personal and technological materialities. Musical participation can mediate relationships, and it plays a complex role in health and wellbeing. In both practical and intellectual terms, these points of connection suggest many reasons to take a critical and questioning stance about the integrity of music academia's deployment of 'participation' to date. CIM22: *Participation* offered space for dialogue among contributors - including invited speakers, invited respondents, and presenters - whose work collectively challenges the constraints of existing discourse around musical participation and explore new futures.

Documented here as a complete set of structured abstracts, CIM22 presenters shared new and emerging findings through a wide range of disciplinary insights and methodological approaches. Topics include, for example, the critique of historical contexts of musical participation; empirical studies of co-ordination and joint action in musical performance; reports from applied sites of musical participation and community music practice; research into music cognition, including enactive perspectives such as participatory sense-making; and the critical re-imagining of musical participation through consideration of digital means, media and virtuality.

A detailed CIM22 conference review, written by Huw Cheston for the Royal Musical Association website, offers thoughtful reflection on the presentations and dialogue generated at CIM22.

About CIM

CIM has its own society (the Society for Interdisciplinary Musicology, SIM) and its own international peer-reviewed journal (the *Journal of Interdisciplinary Music Studies*, *JIMS*). CIM22 contributors are welcome to submit manuscripts for a special issue of JIMS on the conference theme of 'Participation' following the conference.

CIM celebrates diversity. We aim to treat all musically relevant disciplines, all musicological sub-disciplines and paradigms, and all music researchers equally.

In keeping with the aims and values of SIM, CIM promotes epistemologically distant collaborations. In all CIM events, contributions are encouraged to have at least two authors, who should preferably represent two of the following three groups: humanities, sciences, practically oriented disciplines.

CIM focuses on quality rather than quantity and fosters intellectually rigorous debate. Academic standards are promoted by anonymous peer review of submitted abstracts by independent international experts in relevant (sub-) disciplines.

Funding

"CIM22: Participation" was funded by a University of Edinburgh ECA Research and Knowledge Exchange award, and supported through the generosity of our sponsors.

We are most grateful for sponsorship by the organisations SEMPRE, RMA, and ESCOM. This financial support has allowed us to maintain accessible registration costs in the face of post-pandemic hybrid escalations. Conference association grants by RMA and SEMPRE have allowed us to provide conference bursaries to presenters without access to institutional financial support, a population of researchers whose vision is essential to all of our disciplinary fields.

SEMPRE's generosity bolstered the significant technical resource and assistance required of hybrid conferencing. Kind assistance from ESCOM was hugely appreciated, for both the contribution to in-person hosting costs, and for their support and guidance on conference organisation.

We also recognise the labour generously undertaken by the CIM22 review committee, whose peer-review is the lynchpin of academic quality. We are most grateful for your contribution.

We similarly want to recognise the support and advice offered by the committees who serve professional membership organisations, including SEMPRE, RMA, BFE and ESCOM. The time and expertise of these supportive individuals has been invaluable.

Nikki Moran and Youn Kim

August 2022

Committees

Conference co-Chairs

Dr Nikki Moran, Music, The University of Edinburgh, UK (President, Society for Interdisciplinary Musicology 2022-24)

Dr Youn Kim, Department of Music, The University of Hong Kong, HK

Steering group

Dr Juan Loaiza, Independent scholar, UK
Dr Andrea Schiavio, Karl-Franzens-Universität Graz, Austria (Vice president of SIM)
Dr Maiko Kawabata, Royal College of Music, London, UK
Prof. Richard Parncutt, Karl-Franzens-Universität Graz, Austria (Founder of SIM)

Local planning (The University of Edinburgh)

Ethan Davies, Graduate Conference assistant
Menchie Leung, Graduate conference assistant
Louis McHugh, AV Technical director
Carolyn Mason, ECA Administrator
Nicky Regan, ECA Graphic Designer
Stephen Jamieson, ECA Finance team
Alastair Irvine, central Finance team
ECA Events team

Programme committee

Prof. Daniel KL Chua, The University of Hong Kong, HK
Prof. Suk Won Yi, Seoul National University, Korea
Dr Kyung Myun Lee, Korea Advanced Institute of Science and Technology, Korea
Dr Phil Alexander, University of Edinburgh, UK
Dr Morag Grant, University of Edinburgh, UK
Dr Dr Anne Desler, University of Edinburgh, UK
Dr Annette Davison, University of Edinburgh, UK
Prof. Raymond MacDonald, University of Edinburgh, UK
Dr Una MacGlone, University of Edinburgh, UK
Dr Katie Overy, University of Edinburgh, UK
Dr Martin Parker, Head of Music, University of Edinburgh, UK
Prof. Richard Parncutt, Karl-Franzens-Universität Graz, Austria
Prof. Renee Timmers, Sheffield University, UK
Dr Satinder Gill, Centre for Music and Science, University of Cambridge, UK
Prof. Peter Keller, Aarhus University, Denmark

Review committee

Dr Adam Behr, University of Newcastle, UK
Dr Andrea Schiavio, University of Graz, Austria
Dr Bryony Buck, University of Nottingham, UK

Keynote Speakers

To foster the interdisciplinary dialogue vital to all CIM events, the Keynote Plenary format includes invited Respondents. Respondents offered brief remarks to reflect on the topic of the talk from their own disciplinary perspective. We are grateful to our Keynote Speakers and Respondents for their participation in this format, which aimed to platform and model both the possibilities and challenges generated through interdisciplinary dialogue.

Kyra Gaunt (University at Albany State University of New York, NY)

Photo credit: Parris Whittingham (c) 2017

Kyra D. Gaunt's scholarship has broken musicological ground and shaped the emergence of hip-hop music studies, black girlhood studies, and hip-hop feminism. Across diverse platforms within and beyond academia, Gaunt's insights from black feminist scholarship and #BLM campaigning generate expertise. Her work models how to ask for more, include more, and understand more about contemporary musical forms and their power in daily life.

Biography: Associate Professor Kyra Gaunt uses song, scholarship, and digital media to disclose disconnects in music, culture, and technology that perpetuate gender-based violence against girls online. Her prize-winning book, *The Games Black Girls Play: Learning the Ropes from Double-Dutch to Hip-Hop* (NYU Press) and subsequent publications, contributed to the emergence of hip-hop music studies, black girlhood studies, and hip-hop feminism. She was featured in the viral TED video "How the Jump Rope Got Its Rhythm" reaching over 7M+ views published in over 28 languages and in 2020 she became a Senior TED Fellow. Her article "The Magic of Black Girls Play" was an editors' pick in the *New York Times* in July 2020 and her next project is titled PLAYED: How Music Orchestrates Violence Against Black Girls Online.

Respondents: Music Neuroscience – Kyung Myun Lee, Korea Advanced Institute of Science and Technology, Korea**;** and **Historical Musicology –** Maiko Kawabata, Royal College of Music and Open University, UK

Ruth Herbert (University of Kent, UK)

Ruth Herbert's scholarship is marked out by her significant contributions to topics including musical consciousness and imagination – domains which resist definition through disciplinarity. Whilst based on scientific principles of enquiry, her research into the psychological processes involved in everyday listening experiences and the phenomenology of musical experience is underpinned by her performance expertise as a professional pianist. Current work includes the AHRC-funded participatory research project, Playing A/Part exploring the identities and experiences of autistic girls and adolescents.

Biography: Dr Ruth Herbert is Senior Lecturer in Music Psychology and Music Performance and Director of Graduate Studies (School of Arts) at the University of Kent. Initially trained in musicology, she was awarded a Munster Trust Scholarship to pursue advanced solo studies at the Royal Academy of Music, UK. Much of Ruth's work has focused on the phenomenology of musical experience. She has cross-disciplinary research interests in the fields of music and consciousness, trance and ASC, music health and wellbeing, music education, performance psychology and evolutionary psychology. Published volumes include *Everyday Music Listening: Absorption, Dissociation and Trancing* (Routledge, 2016[2011]), and *Music and Consciousness 2: Worlds Practices, Modalities* (co-edited volume with Eric Clarke and David Clarke, (OUP, 2019)). Ruth's many academic publications encompass a range of topics, including musical daydreaming and trait/state understandings of absorption. Ruth has contributed to BBC Radio 4 & 5 features on music and consciousness, music and spiritual wellbeing, and music, food and multisensory experience. She is currently on the editorial board of the *Journal of Sonic Studies*, is book reviews editor and an associate editor for *Musicae Scientiae*, and is a trustee for Beyond Divisions Education Trust and the National Youth Jazz Collective.

Respondents: **Music Education** – Nate Holder, Royal Northern College of Music International Chair in Music Education, UK; and **Music Perception** – Jan Stupacher, Institute of Psychology, University of Graz | Center for Music in the Brain, Aarhus University, Denmark.

Frederick Lau (The Chinese University of Hong Kong, HK)

Fred Lau's research into identity, modernity and diaspora in Chinese, Western, and Asian music and cultures reveals – and emphasises – the pressing need for international, globally-informed music research networks. His expertise as a flutist and conductor underpins his contributions to knowledge around issues of musical hybridity, travelling musics, and conceptions of the Western avant-garde.

Biography: Professor Frederick Lau is an ethnomusicologist whose scholarly interests include a broad range of topics in Chinese, Western, and Asian music and cultures. He is currently chair of the Department of Music, professor of Ethnomusicology, and director of the Center for Chinese Music Studies at the Chinese University of Hong Kong. Besides his numerous published articles, he is author of *Music in China* (Oxford) and co-editor of *Making Waves: Traveling Musics in Asia and the Pacific* (University of Hawaii Press), *Vocal Music and Cultural Identity in Contemporary Music: Unlimited Voices in East Asia and the West* (Routledge), *Locating East Asia in Western Art Music* (Wesleyan), and *China Sound Abroad* (upcoming). He is the editor of the book series "Music and Performing Arts of Asia and the Pacific," University of Hawaii Press. Prior to teaching in Hong Kong since 2018, he was professor of Ethnomusicology at the University of Hawaii at Manoa and California Polytechnic State University.

Respondents: **Music Neuroscience** – Dr Katie Overy, Director of the Music in Human and Social Development Research Group, The University of Edinburgh, UK; and **Music Psychology**: Prof. Richard Parncutt, Professor of Systematic Musicology and Director of the Centre for Systematic Musicology, University of Graz, Austria.

Respondents (Keynote Plenary sessions)

Dr Kyung Myun Lee is Associate Professor in the School of Digital Humanities and Social Sciences, Korea Advanced Institute of Science and Technology. Trained in music, psychology, and neuroscience, her research interests include neural processing of pitch and rhythm and meter perception. She received her PhD in Music Cognition from Northwestern University, USA and has served as President of the Asia-Pacific Society for the Cognitive Sciences of Music.

Dr Maiko Kawabata is an award-winning musicologist and violinist. She joined the Royal College of Music in 2017 having previously held positions on the faculties of the University of Edinburgh, University of East Anglia, and the State University of New York, Stony Brook. Mai is the author of *Paganini, the 'Demonic' Virtuoso* and a co-editor of *Exploring Virtuosities*. Mai received a BBC Radio 3/AHRC grant to further her research into Japanese composer Kikuko Kanai (1906 - 1986). Her ethnographic study of racialised identity among professional East Asian musicians in European and British orchestras is forthcoming.

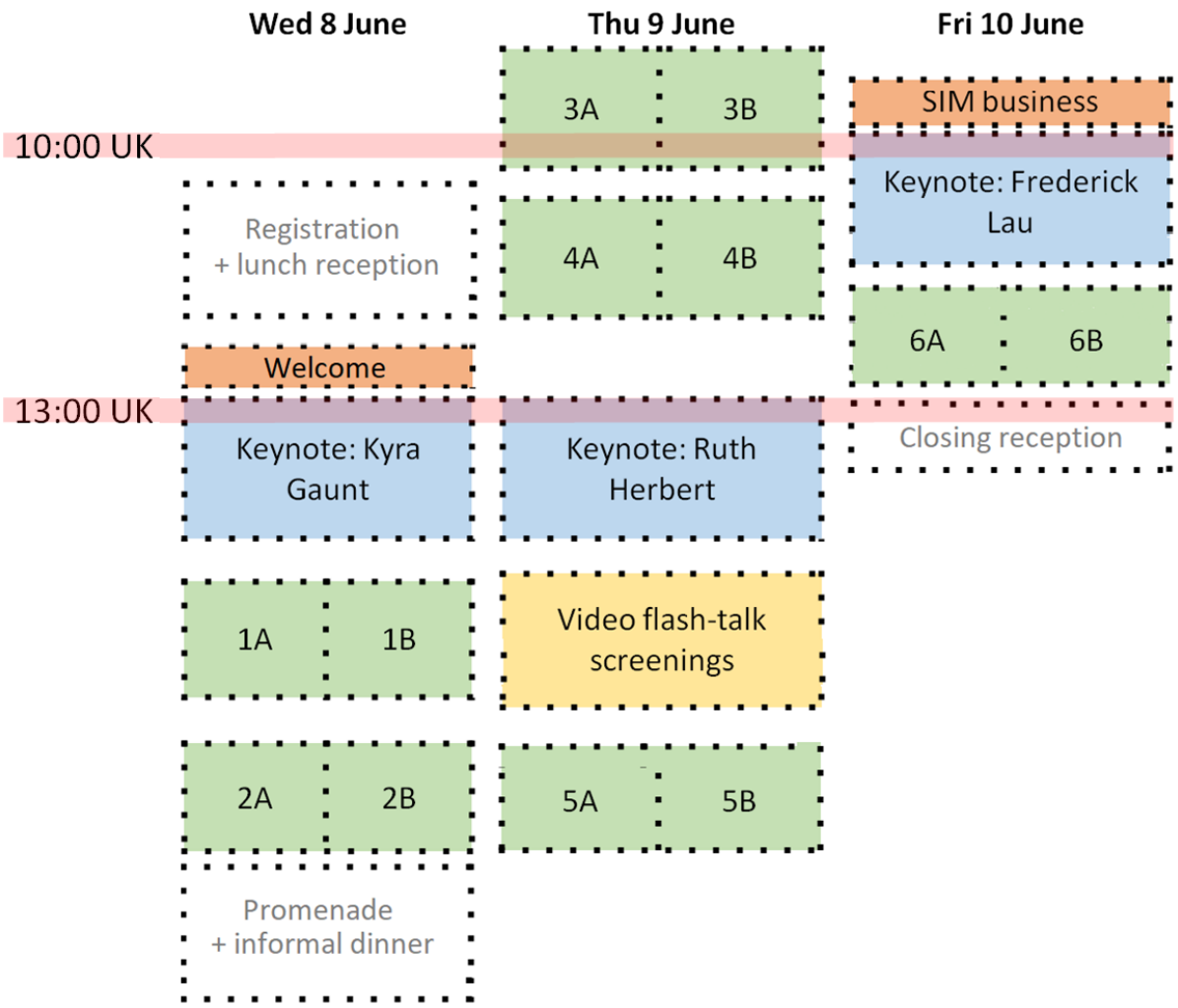
Dr Jan Stupacher is a postdoctoral researcher at the Institute of Psychology at the University of Graz in Austria and at the Center for Music in the Brain at Aarhus University in Denmark. He received his doctoral degree in Psychology from the University of Graz, Austria in 2017, and currently holds an Erwin Schrödinger postdoctoral fellowship, awarded by the Austrian Science Fund. His research interests are rhythm perception and production, sensorimotor synchronization, social interaction in musical contexts, and the concepts of groove and flow in music.

Prof. Nate Holder BA (Hons), MMus is a musician, author, speaker and music education consultant based in London. He is an advocate for decolonising music education and has been speaking, writing and consulting on the subject internationally for the past few years. Nate serves on the board for F-flat books, Music Teacher Magazine and he is a member of the Advisory Group to the Africa APPG's Inquiry into Africa in the UK Curricula. He is currently serving as a Professor and International Chair of Music Education at the Royal Northern College of Music. He has written seven books including, *I Wish I Didn't Quit: Music Lessons* (2018), *Where Are All The Black Female Composers* (2020) and *Listen and Celebrate* (2022)

Dr Katie Overy is a Senior Lecturer, Director of Research and Director of the Music in Human and Social Development (MHSD) Research Group in the Reid School of Music, ECA, at the University of Edinburgh. Her core research interest is musical learning, which she explores from the perspectives of music psychology, cognitive neuroscience and classroom pedagogy. She has published and edited extensively, supervised or examined over 20 interdisciplinary PhDs and in 2019 she was shortlisted for the Times Higher Education Outstanding Research Supervisor of the Year, UK. She is currently collaborating with Lothian Birth Cohorts on studies of musical experience and ageing, amongst other ongoing projects.

Prof. Richard Parncutt is a systematic musicologist and music psychologist. He is Professor of Systematic Musicology at the University of Graz, Austria. His research addresses the perception and cognition of musical structure, the origins of music and religion, and the psychology of music performance, and the human cost of global warming. Richard's record of highly cited publications and editorial service to the field speaks for itself. Through the various academic conferences and research series that he has founded - including CIM, *JIMS* and also the International Conference of Students of Systematic Musicology - Richard has long made use of his professional platform to generate communities of ethically minded, internationally connected researchers.

Schedule at a glance



Scheduled sessions took place live, linking online contributors (Zoom) and in-person attendees.

Video flash-talks were available to view online from 8 June, with in-person screenings scheduled during a live session on 9 June.

Session recordings captured presenters' slides and verbal delivery (in-person and via Zoom), and included the Q&A discussion involving in-person and online delegates. Access to these recordings was made available via the conference website, within 12 hours of scheduled sessions, for access to online and international audiences across timezones.

Access via the password-protected conference website provided registered participants with replay of all session recordings until 30 June 2022.

UK | Hong Kong | UTC	WEDNESDAY, 8 JUNE 2022	
12:45 | 19:45 | 11:45	Welcome to CIM22	15m
13:00 | 20:00 | 12:00	Keynote Plenary: Kyra Gaunt	1h15m
14:15 | 21:15 | 13:15	Coffee Break	15m
14:30 | 21:30 | 13:30	Sessions 1A and 1B	1h30m
16:00 | 23:00 | 15:00	Coffee Break	15m
16:15 | 23:15 | 15:15	Sessions 2A and 2B	1h30m
17:45 | 24:45 | 16:45	End of sessions	
	THURSDAY, 9 JUNE 2022	
09:00 | 16:00 | 08:00	Sessions 3A and 3B	1h30m
10:30 | 17:30 | 09:30	Coffee Break	15m
10:45 | 17:45 | 09:45	Sessions 4A and 4B	2h
12:15 | 19:15 | 11:15	(Lunch) Break	45m
13:00 | 20:00 | 12:00	Keynote Plenary: Ruth Herbert	1h15m
14:15 | 21:45 | 13:15	Coffee Break	15m
14:30 | 21:45 | 13:30	Video Flash-Talks - Screening	1h30m
16:00 | 23:45 | 15:00	Coffee Break	15m
16:15 | 23:45 | 15:15	Sessions 5A and 5B	1h30m
17:45 | 00:45 | 15:45	End of sessions	
	FRIDAY, 10 JUNE 2022	
09:30 | 16:30 | 08:30	SIM Business	30m
10:00 | 17:00 | 09:00	Keynote Plenary: Frederick Lau	1h15m
11:15 | 18:15 | 10:15	Coffee Break	15m
11:30 | 18:30 | 10:30	Sessions 6A and 6B	1h30m
13:00 | 20:00 | 12:00	Close	

Abstract index - by session

Keynote presentations

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Session 1B

Session 2A

Session 2B

Session 3A

Session 3B

Session 4A

Session 4B

Session 5A

Session 5B

Session 6A

Session 6B

Video Flashtalks

Keynote presentations

PLAYED: How Music and Tech Grooms Violence Against Black Girls Online

Kyra D. Gaunt (University at Albany State University of New York, NY)

13:00 UK | 20:00 HK | 12:00 UTC | Teviot Lecture Theatre and Zoom

Session chair: Nikki Moran (Music, University of Edinburgh)

Abstract: When we search for and discover rap artists on YouTube (the number one music discovery channel on the web and the number one destination for kids) or on TikTok, we rarely think our views as users are complicit in the sexual grooming of girls in their intimate bedroom musical play. We rarely consider that we are participants orchestrating that violence, and until we notice it, we can't stop.

This talk unpacks the role that music and tech plays in the way that girls turn up to patriarchal violence and anti-Black sexism, and explains how we can understand these processes as an ecological threat of violence.

When music and tech broadcast the idea of persons labeled as bitch, female (which is an adjective not a noun), dyke, trans, or THOT (the acronym for "that ho over there"), it is not only anti-Black sexism and misogyny, it is psychological and linguistic violence! It tells audiences that those persons should not be taken seriously. We blame the victims and not the climate of air / noise pollution socializing their silence nor the technology enabling it.

Tween twerking content is situated at the intersection of music monetization, algorithmic search recommendations, sexually-objectifying comments, and online sexual enticement tactics. Black and Brown girls have been growing up and drowning in anti-Black misogynistic musical mansplaining. Participation is central to how we can understand what's going on with Black girls online, both in negative terms of marginalisation, but also in terms of imagining solutions: if online Black girls wrote their own twerk songs rather than merely driving attention to the most viral songs on YouTube or TikTok, they could break the Internet in music and tech.

It is critical to understand that full control or independence over one's body or voice is a trap, or a patriarchal illusion, because twerking online is never a solo act.

Respondents: **Kyung Myun Lee**, KAIST (Korea Advanced Institute of Science and Technology) | **Maiko Kawabata**, Royal College of Music and Open University, UK.

Participation and Playing A/Part

Ruth Herbert (University of Kent, UK)

13:00 UK | 20:00 HK | 12:00 UTC | Teviot Lecture Theatre and Zoom

Session chair: Raymond MacDonald (Music, University of Edinburgh)

Abstract: Music, as Christopher Small observed 'is not a thing at all but an activity, something that people do' (1998, 2). The process of musicking is inclusive of all participatory action connected with music – whether performing, listening, dancing|moving, practising, producing, recording – in live concert settings, ritualistic, therapeutic or educational contexts and everyday life. Musical participation is inevitably multisensory and multimodal, and characteristics and subjective experiences of participation are necessarily situated, arising from a systemic interaction between individual, environment and sonic attributes. Importantly, different types of participation are informed by different types of knowledge (e.g. disciplinary specialisms), different ways of knowing (e.g. non-verbal mentation), communicating and experiencing.

In this talk I consider two recent, contrasting multisensory participatory arts research projects, exploring a) the potential of attributes of different media to afford alterations of mood and subtle shifts of consciousness; b) the psychological qualities and characteristics of neurodivergent participation and creativity. Ecological, phenomenological and ethological perspectives serve to contextualise both studies.

The first project was initially developed at Chelsea and Westminster Hospital with young people aged 14-18 undergoing treatment for mental health conditions. It explores intersections between spaces, senses and subjective experience, using processes of Turkish paper marbling (Ebru) and simultaneous musical looping|layering of crowd-sourced sounds. The second (which constitutes the core focus of this talk) was a series of music and sound workshops, part of an interdisciplinary project exploring the identities and experiences of autistic girls and adolescents through a range of creative activities. I discuss an exploratory framework, emerging from video analysis of workshop sessions that identifies a series of what are termed 'modes of playing', (spontaneous and volitional responses|examples of agency, understood as encompassing musical behaviours and general|performative behaviours within a group context). At times girls appeared to play a part (for example projecting a public identity via 'masking'). Alternatively, they would play apart – present but detached|abstracted apart (marked by private or hidden musicking within the group context). Study of neurodivergent musical participation extends our understanding of the processes and dynamics of distributed creativity. As Joseph Straus has observed, 'Our bodies and minds are not all the same, and the differences among us make a difference' (Straus, 2011, 159)

Small, C. (1998). *Musicking: The Meanings of Performing and Listening*. Connecticut: Wesleyan University Press.

Straus, J. (2011). *Extraordinary Measures: Disability in Music*. New York: Oxford University Press.

Respondents: **Jan Stupacher**, Institute of Psychology, University of Graz | Center for Music in the Brain, Aarhus University, Denmark | **Nate Holder,** Royal Northern College of Music International Chair in Music Education, UK.

Music Beyond its Making

Frederick Lau (The Chinese University of Hong Kong, HK)

10:00 UK | 17:00 HK | 09:00 UTC | Seminar Room, 11, F Run Run Shaw Tower, Centennial Campus, The University of Hong Kong and Zoom

Chair: Youn Kim (Music, University of Hong Kong)

Abstract: Music-making is inherently a social act. Much has been said about the sociality of music and the power of musical imagery to carve out social space and create cultural identity. Musicians make music for various reasons, ranging from professional and personal to self-enjoyment. The semiotic potential of music has no bounds, regardless of whether music is performed or consumed publicly, privately, or virtually. Participation in music evokes unexpected associations and hidden knowledge beyond what is heard at the sonic level. Using selected musics of Asia and the Pacific as examples, I apply Thomas Turino's "semiotic snowballing effect" concept and Ana Maria Ochoa Gautier's notion of "aurality" to suggest that aside from its immediate effects, music participation is a rippling wave that reaches outward to a nexus of effects that connect people to the specificities of various cultural contexts and societal dimensions. Music-making and participation is not a linear and teleological process but rather an open-ended course of action that engages with the depth and integrity of established musical traditions while illuminating a path into the future.

Respondents: **Katie Overy**, Director of the Music in Human and Social Development Research Group, The University of Edinburgh, UK | **Richard Parncutt,** Professor of Systematic Musicology and Director of the Centre for Systematic Musicology, University of Graz, Austria.

Session 1A

14:30 UK | 21:30 HK | 13:30 UTC | Teviot Lecture Theatre and Zoom

Chair: Dr Una MacGlone (Music, University of Edinburgh)

Music listening perspectives related to music medicine in hospitals – peace or pain? Performance paper

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Disciplinary background A. Music therapy, focus on mental health and psychiatry.

Disciplinary background B. Psychology, focus on the processes and outcomes of music participation and music listening.

Abstract

This presentation offers cross-diciplinary reflections from a live music experience. The situation of conference participants as active music listeners in a live music event provides the basis discussion of

approaches to music listening, highlighting subjective and varying music listening experiences and perspectives.

The presentation outlines a new approach to music listening in hospitals categorized as music medicine. Music medicine is the professional use of music and sound to aid individuals with the purpose of regulation. At Aalborg University Hospital an app called the MusicStar is used in psychiatric patient care aiming at reducing anxiety, improving relaxation and as a sleep aid. A clinical trial has investigated the efficacy of music listening at bedtime on sleep quality, depression and quality of life in adults with depression related insomnia. The findings pointed to improved sleep quality and improved quality of life. In addition, an interview study reported participants experiences of music listening using the MusicStar app. The study highlights preference and technology as parameters with impact on music listening. Studies were part of a Ph.D. dissertation and results are published. The dynamics of participation, including the music listeners interaction with the music is key to influences of music for the individual. The project integrates psychological theory with music therapy perspectives, music perception and music technology. Hereby, the authors wish to broaden the understanding of fundamental listening processes that lie at the heart of music medicine and the use of music for sleep, relaxation and wellbeing. The presentation briefly presents results from the clinical trial involving patients listening to this new technology, and highlights the integration of clinical, psychological, musicological and technological perspectives in an understanding of subjective music listening experiences – from live improvisations to curated playlists at bedtime.

Interdisciplinary implications. Perspectives from diverging listening scenarios/positions are discussed from two disciplines: psychology and music therapy. Technological considerations in terms of how the software/hardware is utilized and how these technical aspects interact with the social and psychological aspects of music listening and preference will also be discussed.

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Participatory creativity training and creativity self-concepts of students in specialist arts higher education

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Disciplinary background A. Creativity training and assessment. Considerable progress has been made in the field of creativity research over the last few years in refining the concept of creativity (Plucker et al., 2004), in recognising its importance in a wide range of domains including Higher Education (Park et al., 2020; Ulger, 2018) and in developing creativity enhancement interventions and measures (Kapoor et al., 2021; Said-Metwaly et al., 2017).

Disciplinary background B. Training of the entrepreneurial musician. There has been increasing recognition of the need for Higher Music Education (HME) institutions to better equip graduates to manage their future careers, given the uncertainties of the fluid and evolving world of work. In response, some conservatoires have embraced curriculum change toward a greater emphasis on facilitating an entrepreneurial mindset in students but this is not yet the norm in the UK and Europe and it is unclear how this can be most effectively done (Carey & Coutts, 2021). Recent research in entrepreneurship education has foregrounded creativity as a key competence in developing an entrepreneurial mindset (Fillis & Rentscher, 2010).

Abstract

This research aimed to evaluate the impact of a participatory creativity intervention using acontextual and contextual methods of measurement in students on music, art and speech/drama programmes.

This mixed-methods study contributes to understanding of perceptions and development of creativity in creative arts students. An extra-curricular virtual workshop was conducted for undergraduate and postgraduate students from three specialist arts higher education institutions, in the fields of music, visual and dramatic arts. The programme was designed to enable students to work collaboratively in groups on a variety of entrepreneurship and creativity-related tasks over a two-day period. The training was based the CLEAR IDEAS framework for creativity training, drawn from organisational creativity and innovation research (Birdi, 2016). The programme aimed to systematically support skills to better generate ideas (Day 1), and implement them (Day 2). Alongside this, a series of data collection activities explored a range of dimensions of creativity: a generic divergent association task (DAT) (Olson et al., 2021): a contextualised idea generation task, and a self-assessment against core creativity competences, assessed at start and end of the workshop. Results showed that students' creative self-efficacy can be significantly enhanced by scaffolding the collaborative processes of idea generation and evaluation. There was a slight increase in pre- and post- event DAT scores when assessed by a paired-samples t-test. Five self-rating questions showed increased competence in finding new opportunities for innovation, and generating ideas that are original.

Interdisciplinary implications. The training interventions and approach to evaluation are applicable in a range of domains. The findings have implications for research on musical creativity measures and concepts, and their contribution to domain-specific and domain-general behaviours (Schiavio, Bashwiner & Jung, 2021). It highlights the wide range of skills and self-concepts of creativity even within the relatively narrow cohort of arts students. It provides further evidence and practical tools to support the training of music students in HME settings. In particular, it further reinforces the value of pedagogical strategies which enable students to contextualise and develop their creativities across domains, and of their embedding in the culture and curricula of specialist arts HEIs.

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Session 1B

14:30 UK | 21:30 HK | 13:30 UTC | G.03 and Zoom

Chair: Prof. Renee Timmers (Music, University of Sheffield)

Digitally mediated collaboration: Composing 10,427 miles and 11 hours apart

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Disciplinary background A. Music education. One of the perennial problems of music education is building music teachers' skills and confidence to include more creative as opposed to recreative music making in their classrooms. There is a need to counter hegemonic thinking that privileges

performance, restricts creativity and the ongoing development of new music (Fautley, 2015; Georgii-Hemming & Westvall, 2010), and recognise the everyday musical cultures of young people (Green, 2008). Drawing on participatory culture in media education (Jenkins 2006), collaborative co-construction of digital music projects can contribute to more culturally relevant pedagogy (Cremata & Powell, 2015) and the development of student voice.

Disciplinary background B. Ethnomusicology. Ethnomusicology takes a holistic and relativistic view of music making in its cultural context with the transmission of music from one context to another recognised as a cross-cultural phenomenon which is relevant to considering pedagogy across cultural boundaries (Campbell, 2001). Turino's (2008) theory of participatory music making is increasingly used in music education to understand experiences that involve all learners in engaging musical experiences irrespective of prior experience. Camlin (2014) suggests applying a dialogic frame to explore the continuum between Turino's (2008) presentational and participatory fields.

Abstract

Our aim for this paper is to use Turino's (2008) theory of participatory music making to analyse a real-world collaborative online music and video creation project that we undertook with our music education student teachers in response to the theme: My Life in Isolation: A World Apart or Same Difference?

At the beginning of 2021, both Aberdeen, Scotland and Melbourne, Australia had been in extended lockdowns and prolonged remote learning. On opposite sides of the world, we noticed that our teacher education students were experiencing wellbeing and engagement challenges due to isolation. We decided to undertake a digital collaborative composing project so our students could explore a real-world music and video creation project that they could adapt for use with school students and participate musically with peers.

Using a cloud-based digital-audio-workstation the students worked in groups of five. Each student collected video that captured their experience of life in isolation. As a group, they combined and edited this footage into 1-2 minutes to depict their collective experience of lockdown on opposite sides of the world. Then, they collaboratively composed music to accompany their footage in the same way that film composers work.

Digital technologies are recognised as supporting students at all levels of prior musical experience to compose. The access to digital instruments and loops means that the process of creating music is not limited by people's skill in playing an instrument or being fluent in musical notation. The rise of low cost and accessible music software and hardware has meant that young people frequently create music in their lives outside of school. Bringing digital technologies into school classrooms promotes participation: it builds bridges between young people's inside and outside school musical lives, thus supporting their multiple and shifting musical identities and reducing alienation with school music (Spruce, 2015). Reducing the barriers to music making promotes access and inclusion. Composing provides opportunities for individual voices to be heard and for young people to play and create 'their' music, using a pedagogy that draws on Green's (2002, 2008) informal music learning principles.

Interdisciplinary implications. Our paper aims to highlight the commonalities between, and affordances of, drawing on theories derived from both music education and ethnomusicology to build the confidence of music educators to incorporate creative music making, digital technologies, and the musics that young people choose for themselves, in their classrooms.

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Playing no solo imagination: Synthesising the rhythmic emergence of sound and sign through embodied drum kit performance and writing

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Disciplinary background A. Artistic performance practice: years of firsthand experience performing the drum kit, live, mainly in the context of experimental and improvised music, and creative writing.

Disciplinary background B. Embodied music cognition.

Abstract

This presentation is a creative demonstration of the interconnected contribution of non-verbal, sensory, and intersubjective imagination to musical play. The work addresses the theme of Participation through the presentation of practice-led research, contributing argument and evidence for the manifold ways of knowing music which sit beyond discursive norms. In particular, I will

demonstrate how an ecological, growth based methodological and conceptual ground was established in response to the following initial questions:

(a) What is the felt relationship between listening and inscription?

(b) How do particular words, diagrams, real and imagined materials affect the sound of drum performance?

(c) How do movements of the body relate to semantic and timbral conventions?

I present practice-based research that explores musical imagination through examining the relationship of embodied musical performance and writing. The drum kit, and writing, were treated simultaneously as artistic materials and critical technologies. This allowed the sensations, signs and sounds, grown through practice, to simultaneously illuminate both analytical and poetic aspects of the subjective experience of the musical imagination.

Motivated by the complex firsthand experience of embodied musical performance this research makes legible, audible, the mix of movement, energy, language(s)—bodies, ideas, vibrations—constituting the generative relationship between imagination and intersubjectivity. Ongoing investigations were, over time, structured by three (what I provocatively call) 'Rhythmic Figure' studies, focusing, through embodied performance, on a particular aspect of the research. Through these studies I encountered the complexity of developing choreographies for drum kit play in order to investigate, in detail, the interrelationship of sonic, semantic and physical elements. This required the overall form of the project—thesis and creative practice output—to coalesce, reflect and extend the synthesis of real, imagined, poetic and analytic aspects I had encountered. The 'Rhythmic Figure' studies feature a number of fictional characters, necessitating a the conceptualisation of a space - a 'dramatic environment' called The Garden to host the outcomes. Performing the 'Rhythmic Figure' studies demonstrated interwoven imaginative, material, and theoretical aspects.

The project demonstrates how the body of the performer—engaged in the specific dynamic physical and semiotic play that music performance necessitates—is the site of ‘discrepant translations:’ an ongoing dynamic mix of tension and generative growth between registers of language and modes of consciousness and communication. This knowlingly subjective expression of the musical imagination: makes apparent the capacity of a performing body to critically synthesise and restructure material and semiotic conditions. The novel use of characterisation and imaginary structures also demonstrates a challenge to the notion of an autonomous, solo subject in musical performance practice, through establishing an ecological ground. This project demonstrates complex ways the formal aspects of music making bear on the musical imagination: the capacity of inscription to variously capture, inscribe, cultivate or block the mix of forces at work in an emerging music.

Interdisciplinary implications. The project reveals the complexity of interrelationships between embodied and biosemiotic aspects of music performance processes, and the musical imagination in particular. This presents both a challenge and a stimulus to cross-disciplinary investigations across the fields of music practice and systematic musicology. In rendering features of this complex ecologically grounded process through creative artisitc practice, an ongoing and critical material dialogue is established between (a) perceptual ltering: quanti cation and inscription; and (b) the complex, non-verbal, aspects of embodied performance most resistant to transcription.

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Session 2A

16:15 UK | 23:15 HK | 15:15 UTC | Teviot Lecture Theatre and Zoom

Chair: Dr Satinder Gill (Centre for Music and Science, University of Cambridge)

Does prosocial attitude affect creativity in musical improvisation?

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Disciplinary background A. Statement of background in Psychology of Creativity: Organizational psychology has demonstrated the importance of social dynamics for group creativity (Hennessey et al., 2020). Prosocial attitudes, e.g., feeling close to each other, can affect joint creativity in different ways (Oztop et al., 2018). It remains unclear whether such findings can be applied to other domains, such as music.

Disciplinary background B. Statement of background in Musical Improvisation: Musical improvisation research includes descriptive analyses, as well as investigations based on quantitative methodologies. And although musical improvisation is often participatory, the social dynamics at the heart of such an activity have rarely been addressed from an interdisciplinary perspective that brings together both approaches.

Abstract

The present research aims to shed light on how intra-group social dynamics shape creative musical improvisation, examining the perspectives of both improvisers and external raters.

To study the impact of prosocial attitude in musical improvisation, we implemented a quasi-social improvisation task (done remotely), in which novices were invited to improvise with a virtual avatar (i.e., a moving stick-figure drummer hitting a cymbal in synchrony with a backing track). Using a virtual improvisation partner ensured comparability of outcomes; and to further reduce the variance among participants we kept the baseline of expertise consistent by only recruiting novices. Furthermore, it has been shown that prosocial attitude towards a virtual partner can increase through an imagined synchronization task (Stupacher et al., 2020). Based on this finding we demonstrated in a preliminary study (n = 65) that an overt synchronization task with the virtual drummer can increase prosocial attitude, assessed through felt closeness.

Building on this research, the present empirical study involved two experimental phases: in the first phase ("improvisation"), 18 novices were invited to improvise in three conditions, each starting with a priming task. In condition 1 a neutral prime was used to not alter prosocial attitude; in condition 2 participants had to synchronously move with a black dot to a metronome, which allowed to control for the effect of movement on creativity; condition 3 involved an overt synchronization task to increase the feeling of closeness to the virtual drummer. After each priming task, participants performed three short rhythmical improvisations by triggering two conga samples via a computer keyboard. Participants improvised for 17 seconds along with the avatar playing the drum backing track. Felt closeness to the virtual drummer was assessed before and after the improvisation phase via the "Inclusion of Other in the Self" scale (Aron et al., 1992). In the second phase ("rating"), 30 expert musicians were invited to evaluate how creative these recorded improvisations were.

Our statistical analysis via a linear mixed model points to a significant increase (b = 0.47, 95% CI [0.22, 0.73]) for closeness averaged over both measurements for condition 3 compared to condition 1.Overall, the analysis implies that for an increase of average closeness the creativity of improvisations significantly decreases (b = -0.26, 95% CI [-0.43, -0.10]). This only significantly differs (b = 0.27, 95%CI [0.06 - 0.47]) for condition 2, which suggests that the decrease in creativity in this condition is not mediated by closeness.

Interdisciplinary implications. Our findings provide preliminary evidence that an increased feeling of closeness to a virtual partner inhibits creativity in musical improvisation. We suggest that the reason could be the focus on the rigid synchronicity enacted by the improvisation partner in condition 1 and 3. Meaningful musical improvisation requires the establishment of a deep intersubjective relationship between improvisers, in which one's own lived experience includes that of the other, in a constant dynamic interplay of emotions, gazes, expressive strategies, and gestures. Hence, developing flexible forms of entrainment between co-performers might be a key factor in fostering creative musical outcomes.

Our study is a starting point for examining such social dynamics, placing an emphasis on musical creativity both from the perspective of the improvisers and from that of external evaluators. This can

help provide new understandings of musical participation and creativity, inviting new interdisciplinary reflections amongst the sciences and the performing arts.

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Sentiment analysis of corona-musicking online reveals bifurcation of pandemic coping strategies

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Disciplinary background A. Music Psychology. When a sweeping pandemic forced social participation into hibernation in early 2020, musical creators and consumers moved their activities online, embracing emerging technology and inventing a stylistically diverse universe of coronamusic (Hansen, 2021; Hansen et al., 2021). Interest in corona-themed music became the foremost predictor of music-aided psychological coping with a functional bifurcation between those experiencing negative and positive emotions: the former used music for self-directed emotion regulation whereas the latter used it as a proxy for social interaction (Fink et al., 2021). Indeed, approach coping has been linked with positive affect during lockdown (Eden et al., 2020), and humor, joy, and togetherness dominated anecdotal media reports about pandemic music-making (Hansen et al., 2021). Yet, quantitative investigations of positivity bias and functional bifurcation in coronamusic repertoires and in text- and video-based musical participation online are absent.

Disciplinary background B. Linguistics. In mapping psychological coping, social media data are complementary to self-report surveys in detecting broader trends in behavioral patterns at national and global levels on a more granular timescale. Such data types are multifaceted, including information about social networks, engagement (e.g., streams, likes, shares), and user-generated content (e.g., profiles, comments, posts). Natural Language Processing (NLP) offers adequate tools for collecting, analyzing, and interpreting large corpora of text-based user data from online sources in real-time as events—such as the coronavirus pandemic—unfold (Liu et al., 2021). Although NLP has been widely applied to research on digital behavior, its full potential for studying musical phenomena remains to be seen.

Abstract

To investigate if and how key findings from music-psychological self-report questionnaires manifest in participatory corona-musicking online during pandemic lockdown.

Sentiment in text corpora sourced from Twitter, Reddit, YouTube, and public news media was quantified using NLTK's Vader Analyzer (Hutto & Gilbert, 2014) and Sentiwordnet (Baccianella et al., 2010): specifically, (i) non-music-related (n=16,619,492) and music-related (n=205,912) COVID-19-themed tweets from March-May 2020 (Qazi, Imran, & Ofli, 2020); (ii) 119,926 comments posted to the "ListenToThis" and "LetsTalkMusic" subreddits during March-May 2019 and 2020; (iii) YouTube comments (n=2*63,393) posted in response to 329 English-language coronamusic videos matched with non-coronamusic controls; (iv) transcribed lyrics from some of these videos; and (v) coronamusic-related news coverage from the Coronavirus subset of the NOW corpus (English-Corpora.org, n.d). Valence was, moreover, obtained from the Spotify API and compared between 575,254 unique tracks from 9,486 COVID-19-themed Spotify playlists with >1 followers and a 3,706,388-track control corpus from Music Streaming Sessions Dataset (Brost et al., 2019).

Mean sentiment scores were significantly higher for music-related COVID-19 tweets—both with ($t(211553)=120.5$, $p<.0001$) and without retweets ($t(56025)=50.3$, $p<.0001$). Reddit comments from 2020 either scored higher ("LetsTalkMusic", $U=342337948.5$, $p=.0096$) or lower ("ListenToThis", $U=536186459$, $p<.0001$) compared to 2019, depending on topical focus. COVID-19-themed Spotify playlists, moreover, exhibited significantly higher valence than controls ($t(8826.3)=21.5$, $p<.0001$), and k-means clustering on audio features suggested two distinct categories of low-energy/low-valence "chill" and high-energy/high-valence "party" playlists. Sentiment in target YouTube comments ($p=.073$) and news articles ($p=.058$) only differed marginally non-significantly from controls. Lyrics analysis is underway.

Interdisciplinary implications. Functional bifurcation manifested in some corpora along with tendencies towards positivity bias in online corona-musicking. Consequently, consumers may have adopted short-term, mental-health benefits (Nabi & Krcmar, 2004) by regulating mood and stress levels, thus facilitating subsequent problem-oriented, long-term coping (Halfmann & Reinecke, 2021). As musical participation becomes increasingly digitalized, text-based communication and meta-data provide information-rich resources that NLP tools can readily exploit.

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Tapping with a stranger: How does empathy mediate the affiliative effects of interpersonal synchronisation?

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Disciplinary background A. Music. The study is informed by music studies focusing on interpersonal synchronisation during musical interactions between individuals with little or no formal musical training.

Disciplinary background B. Psychology. The study draws on research work in psychology that focuses on trait empathy and the emergence of social bonding through non-verbal interactions.

Abstract

The present study aims to explore how trait empathy mediates the feelings of closeness, similarity and empathy stemming from synchronous musical interactions in individuals with little or no formal musical training. In addition, the study seeks to explore how changes in the musical and social environment of a joint action might influence this role of empathy in mediating the affiliative effects of synchronisation.

Background: In the last decades, research has revealed that moving, tapping or playing music in synchrony with others fosters group cohesion and social bonding (Vicaria & Dickens, 2016; Stupacher, Maes et al., 2017). Researchers have also recently observed an association between trait empathy and the strength of those social bonding effects stemming from synchronisation, i.e. one might experience stronger or weaker effects depending on their empathy level (Stupacher, Mikkelsen & Vuust, 2021). However, this mediating role of empathy appears highly susceptible to changes in the musical and social environment of an interaction and requires further investigation (Stupacher, Mikkelsen & Vuust, 2021). We, therefore, sought to explore the changes that might influence this role of empathy by implementing two different musical settings (a finger-tapping and an observational task - social changes) with music in three different tempi (musical changes). The purpose of the two tasks was to detect any differences in the role of empathy when individuals actively engage or passively observe a musical interaction. Furthermore, the different tempi sought to elucidate further the impact of music on this relationship between empathising and synchronising with others.

Methods: Eighty-five participants with little or no previous musical training were recruited, and their empathy was measured using the Interpersonal Reactivity Index (Davis, 1980). Following this, participants completed: a) a finger-tapping task, where they engaged in tapping interactions with a computer, being led to believe that they were interacting with tapping recordings of other participants; and b) an observational task, where participants watched videos of two stick-figures walking (Stupacher, Maes et al., 2017) while imagining being one of them. In both tasks, synchronisation was manipulated based on four conditions: 1) synchronous, in-phase; 2) synchronous, anti-phase; 3) asynchronous, in-phase; and 4) asynchronous, anti-phase tapping or walking, respectively. Music was presented in three different tempi: 83, 100 and 125bpm. Each task comprised 12 trials (4 conditions x 3 tempi), all of which were followed by participants rating their feelings of closeness, similarity and empathy toward their ostensible partners on a Likert scale ranging from 1 ("Not at all") to 5 ("Very much").

Results: Data analysis is currently in progress; however, we anticipate finding that individuals with higher empathy experienced stronger affiliative effects toward synchronous partners, while those with lower empathy experienced a stronger disconnection from asynchronous partners. We further anticipate that slower tempo negatively impacted the role of empathy, and all participants perceived the finger-tapping task as a stronger musical interaction. Therefore, both the affiliative effects of synchronisation and the effect of empathy were stronger in the finger-tapping task across all participants.

Interdisciplinary implications. The anticipated outcomes highlight an emergent interplay between personal characteristics and synchronisation proximity in the general public. Therefore, the implications for music and psychology could be the implementation of this interplay to design more contextually sensitive musical interventions aiming to foster social bonding and empathy across different groups, alleviating, therefore, emerging intergroup barriers.

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Session 2B

16:15 UK | 23:15 HK | 15:15 UTC | G.03 and Zoom

Chair: Prof. Richard Parncutt (Centre for Systematic Musicology, University of Graz)

"Turning the beat around": Time, temporality, and participation in the jazz solo break

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Disciplinary background A. Performance science has shown that lengthening the duration of a beat stresses its contextual position as a metrical accent (Repp 1992). Consistent patterns of lengthening and shortening can therefore help listeners form higher-level rhythmic and metrical structures (Iyer 2002). How such patterns vary during a performance has not been explored.

Disciplinary background B. Cognitive psychology provides a rich theoretical background for understanding the process of temporal entrainment in music performance contexts. Research into attention and perception has revealed how the anticipation of repetitive events contributes to entrainment within individuals.

Abstract

(1) To investigate whether musicians create consistent patterns of beat lengthening when performing and examine the effect these patterns have on metrical construction. (2) To establish if these temporal patterns differ depending on whether the musician creating them performs with others or is unaccompanied. (3) To explore the effects that changes in temporal patterns in unaccompanied or accompanied music may have on higher-level perceptual, attentional, and participatory processes in listeners and performers.

Through the study of a single structural device, this paper interrogates the participatory and cognitive processes involved in the construction of musical metre. The subject is the 'solo break', a common structural device in jazz performance practice where one musician briefly improvises alone, without accompaniment from the ensemble; the ensemble is then reintroduced after the break, usually beginning a new section in the performance. During the solo break, the unaccompanied soloist is responsible for stating the beat, and their placement and accentuation of it can differ substantially from the previous ensemble passage. If the entrained pulse is rejected or otherwise altered by the unaccompanied musician, this can affect how the underlying metre is perceived (London 2004). There is often significant variance between different perspectives on the metre during an unaccompanied break, the consequences of which might negatively impact the participatory and interactive processes between the performers (Berliner 2004).

This paper presents the findings of a recent quantitative study we conducted into beat lengthening and accentuation during the solo break. Ninety-two instances of breaks exchanged between an unaccompanied drummer and an ensemble were identified from the analysis of a corpus of fifteen commercial recordings. Timing data in the form of inter-onset intervals (IOIs) was extracted from the performance of the drummer in these extracts. Through the application of the autocorrelation function defined in Clayton et al. (2005) to this data, the presence and strength of systematic patterns of beat lengthening and shortening were identified before, during, and after a solo break.

Our findings suggest that musicians establish different timing patterns depending on whether they perform with or without accompaniment. This is shown to manifest in a process of metric 'smoothing'; strong beats were typically lengthened (with weak beats shortened) during ensemble passages, while beats tended to be of more unpredictable duration during unaccompanied performances. Beat groupings with consistent differences in duration are generally easier to parse into higher-level rhythmic structures than groupings with unpredictable durations (Fraisse 1982). As a consequence,

we argue that the unaccompanied solo break poses a greater challenge to the perception of musical metre than ensemble performance more generally.

Interdisciplinary implications. It is well-documented that musicians frequently make mistakes during solo breaks, usually by 'turning the beat around' – perceiving metrically-strong beats as weak beats, and vice-versa (Berliner 2004). Our analyses show how these mistakes may emerge from attentional and perceptual difficulties involved in entraining to passages of unaccompanied improvisation. Consequently, the results presented here have implications for future research in music education and performance, alongside the interdisciplinary study of cognition and interaction in musical participation. More generally, these results speak to the value of applying quantitative methodology to improvised jazz, a subject that traditionally resists empirical study given its lack of notated scores and the freedoms afforded to its performers.

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Redefining groove

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Disciplinary background A. Groove is a popular and widely-used concept in the field of music. Yet its precise definition remains elusive. Upon closer inspection, groove appears to be used as an umbrella term with various connotations depending on the musical era, the musical context, and the background of the individual using the term. For instance, from an ethnomusicological perspective, groove is defined as an "unspecifiable but ordered sense of something that is sustained in a distinctive, regular and attractive way, working to draw a listener in" (Feld, 1988, p.76).

Disciplinary background B. The term groove is under close inspection of music psychologists over the last couple of decades. Even though current research exhibit groove as a multifaceted phenomenon (Witek, 2017; Senn et al., 2020) with performance (Frühauf et al., 2013), music (Stupacher et al., 2016), and listener experience aspects (Danielsen, 2010); definition of groove remains rather simply as a: 'pleasurable desire to move to music' (Janata et al., 2012; Kowalewski et al., 2020; Senn et al., 2020). This multidimensionality and lack of a comprehensive understanding of the term have resulted in

rather dissimilar definitions of groove being used across different studies, leading to phenomenological ambiguity.

Abstract

Thus, the primary motivation for this study was to explore different definitions and connotations of the term groove and provide a more holistic representation of what exactly constitutes groove.

For this aim 105 participants (61 women, 41 men, 3 other) took part in an extensive online survey. Participants aged from 16 to 54, originated from 19 different countries, with the majority of them reporting to be Finnish (N=56) or Turkish (N=23) nationals and students (N=59). Moreover, three levels of musical training were observed among the participants: Eight years and above (N=29), less than 8 years (N=35), and no musical training (N=41). Initially, participants rated their familiarity with the term on a 7-point Likert scale. Subsequently, they were asked to respond to the question "what makes a song 'groove' in your opinion" as a free-text, on voluntary based. 88 of participants provided groove descriptions.

Since the aim of this research was to review definitions of groove with a more holistic approach (in order to be inclusive for both well established and also novel factors pertaining with the concept of groove in the literature), a mixed data analysis method, abductive thematic analysis was preferred. Abduction is stated as "a creative inferential process aimed at producing new hypotheses and theories based on surprising research evidence" (Timmermans &Tavory, 2012, p.167).

The abductive thematic analysis revealed that participants' groove descriptions fit into three main categories: music-, experience-, and individual differences related aspects. Based upon this analysis, we propose a contemporary working definition of the term groove as used in the field of music psychology: "Groove is a participatory experience (related to immersion, movement, enjoyment, and social connection) resulting from subtle interaction of specific music- (such as time- and pitch-related features), performance- and/or individual difference-related factors."

Furthermore, in order to distinguish different aspects of groove that are associated with its perceived musical features and induced effects on listeners, we propose the terms perceived and induced groove, in a similar manner as in the music and emotion literature (for a review see: Juslin & Laukka, 2004). Importantly, this specification will permit further research with a common language to refer to distinct aspects of groove and thus create a more profound understanding in groove literature.

Finally, we direct future studies to focus on the concept of groove under influence of different variables, such as the roles of individual differences (such as age, expertise and personality traits), execution of overt movements, or presences of others on listeners' perceived and induced groove experiences. These will further elucidate our understanding of what groove actually is.

Interdisciplinary implications. Contrary to its commonly accepted definition in music psychology, groove is not a simple concept, but one that arises from various interactions between a) the artists who are performing the music, (b) the musical elements that emerge during the performance, (c) its listeners and the artists, (d) the listeners as individuals, and (e) the listeners within a group. Thus, it can be said that groove is not solely a musical phenomenon but rather it concerns the participation of the other factors mentioned earlier. Thus, untangling the multidisciplinarity of the concept, collaboration of the domains (such as music information retrieval, music performance, as well as individual and group psychology - including subdisciplines of movement and emotion research) would be necessary. Therefore, we hope that updating its definition and considering groove as a multifaceted phenomenon with its nuances will enable more profound future work in the fields of musicology.

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Time flies: Temporal pacing and transitions in newly-formed music groups

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Disciplinary background A. Music psychology. In Western classical music, participation generally involves a preparation period, and a performance. Time constraints have been shown to affect behaviour during rehearsal (Kokotsaki, 2007) and shifts in focus observed as performance approaches, from verbal communication to nonverbal interactions (King & Gritten, 2018).

Disciplinary background B. Organisational science. The punctuated equilibrium model of team development (Gersick, 1991) predicts a change in behaviour at the calendar midpoint, regardless of the timeframe over which this unfolds. Later research suggests this provides a type of ‘semistructure’(Okhuysen & Waller, 2002), which, along with familiarity, norms and goals, provides a framework for working on complex tasks.

Abstract

This research aims to explore the group development and interactions experienced by newly-formed music ensembles as they prepare for performance.

This study contributes to understanding of the role of time in the pacing and unfolding of activities in rehearsal series, using a mixed-methods approach including patterns of verbal interactions, interviews, and visual diagramming. Two newly-formed vocal quintets were studied over a three-month period. The study identified time-bracketed periods of rapid development and change, which were triggered by internal factors (interactions, feedback, new ideas) and external influences (deadlines, time constraints). Within this cultural context, the practice-based norms of Western classical music provided a source of structure and stability, whilst internal and external events were catalysts for change (Pennill & Breslin, 2021). These opposing tensions gave rise to a series of transition points and phases of development. The findings also revealed that non-conscious patterns of verbal interaction arose during the earliest interactions, became more complex to the mid-point of the rehearsal series, and then simplified as the group progressed towards their recital at the end of the study period. Qualitative data from interviews and visual diagramming with group members also supported a mid-point shift in group development. Together, these findings suggest a new, three-phase framework for small group collaboration.

The study contributes to research on emergent behaviour in newly-formed groups, providing further evidence to support the punctuated equilibrium theory as a dynamic, time-based model of group development. For music groups, it provides new insights into ways that group processes contribute to performance outcomes, and therefore better understanding of ways that rehearsal time can be better managed, and the transition points to be anticipated and managed. Finally, it contributes a novel combination of methods, drawn from music psychology and small group research.

Interdisciplinary implications. This study brings together two fields of research; small group dynamics and music participation. It highlights the value and importance of longitudinal research in understanding the evolving nature of collaboration in music ensemble rehearsal. Further research could extend the timeline into performance, and into different genres of small music groups. The use of the chosen suite of methods can be used to explore more types of interaction, for example when and how decisions are made. In particular, a focus on the emergence of leadership, in which there is an extensive body of research in the small group literature, could be readily adapted for the music ensemble context.

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Session 3A

09:00 UK | 16:00 HK | 08:00 UTC | Teviot Lecture Theatre and Zoom

Chair: Dr Mike Newton (Music, University of Edinburgh)

Signification system as artificial intelligence: Berio's "eternal path between sound and sense"

Misty Choi
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Disciplinary background A. This paper examines the relations among music, language and theater primarily from the perspective of historical musicology.

Disciplinary background B. The paper has a secondary focus on linguistics.

Abstract

The study investigates the signification model devised by the twentieth-century Italian composer Luciano Berio, who explored how music conveys meaning throughout his career. The utopian vision was described as the “eternal path between sound and sense.” I argue that Berio was consciously designing a system based on a hybrid of intellectual discourses surrounding human’s innate linguistic ability. Similar to artificial intelligence, this system, I suggest, is able to “think”—it can analyze incoming materials based on given principles, while allowing chances to create an open-ended schema to generate infinite number of materials. On the other hand, in the two symphonic works _Sinfonia_ and _Coro_ I investigate, “theater of the mind” is evoked to elicit the audience’s participation of the sense-making.

As Berio stated, his interest in linguistics was driven by a need to explore the connection between sound and meaning. He described his exploration of language in relation to the human cognitive capacity to process music as a series of “linguistic projects.” Although the search for “universality of experience” remained inconclusive, it allowed Berio to develop what he called “music of musics” or “language of languages” in music. As I show, the “meta-music” he developed is a signification system that can be identified in the third movement of _Sinfonia_ (1968) and _Coro_ (1974). Both works involve multiple pre-existing musical, textual elements and diverse musical styles as compositional materials. “Distinctive features,” similar to those in phonological analysis, are filtered out by juxtaposing new materials each time. The identity of these pre-existing materials is recalled through a catalogue of abstract musical features. These features are then combined and developed to generate new materials. Chance is also allowed during the generating process so that the system becomes an open schema. The system demonstrates the motto “infinite use of finite means” discussed by linguists in the mid-century. On the other hand, the ever-generating musical and textual materials form diverse situations which evoke a “theater of mind.” The final step of the signification, I illustrate, is the interpretation of this invisible theater that requires the audience’s active meaning-

seeking process. The audience's task is to connect diverse images derived from the musical and the textual levels to imagine different situations.

Interdisciplinary implications. The relationship between music and language has been perennial problem throughout centuries. As paradigm shifts in the study of language were witnessed in the twentieth century, new ideas emerged to explain the way music functions as a system to convey meaning. As I demonstrate, Berio's automatic, open-ended signification system is designed specific to music, and is supported by intellectual discourses ranging from linguistics, literature and literary theory on language. The system sheds lights on the possibility of automation of music with its own guiding principles to operate, so that new musical elements can be generated infinitely similar to the productive nature of language. Despite its imperfection, the signification model may provide inspirations for composers and computer engineers to analyze and generate music. Pre-existing materials or musical styles are identified and abstracted into "musical signs" or "distinctive features." These units can be further analyzed, modified and re-created.

On the other hand, Berio's exploration of "theater of the mind" is closely related to Berio's conviction of the existence of "universality of experience." Such hypothesis assumes the audience have the innate cognitive capacity to analyze music and text unconsciously and project images in their mind. The existence of "universality of experience", which was inspired by the notion of "linguistic competence" discussed in the mid twentieth century, was so far inconclusive. Berio's quest for the innate musical ability of humanity can be a topic or a case study for future research.

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The transfer effect of musical ability to intelligence and reading: A longitudinal study on Mandarin-speaking primary school children

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Disciplinary background A. In the discipline of music education, how musical training can benefit other non-musical cognitive domains has been a perennial theme among music educators, music pedagogist, and education policymakers. Despite its importance, the mechanism of the musical transfer effect is still shrouded in mystery. According to Swaminathan & Schellenberg (2019), not only are the results of the current literature on the transfer effect of musical ability contradicting, but the definition of musical training is also loosely defined.

Disciplinary background B. In the discipline of linguistics, it has been hypothesized that tonal language speakers tend to have a finer perception of pitch variation so that it can be transferred to the domain of music, which also relies heavily on pitch variation. According to this hypothesis, tonal language speakers should have a higher prevalence of perfect pitch possessors and a lower prevalence of amusic patients. Except for this hypothesis, the direction of language-to-music transfer is still insufficiently investigated when compared to the music-to-language transfer. Moreover, there is virtually no literature on the language-to-music transfer when a longitudinal approach is adopted.

Abstract

In the discipline of linguistics, it has been hypothesized that tonal language speakers tend to have a finer perception of pitch variation so that it can be transferred to the domain of music, which also relies heavily on pitch variation. According to this hypothesis, tonal language speakers should have a higher prevalence of perfect pitch possessors and a lower prevalence of amusic patients. Except for this hypothesis, the direction of language-to-music transfer is still insufficiently investigated when compared to the music-to-language transfer. Moreover, there is virtually no literature on the language-to-music transfer when a longitudinal approach is adopted.

Explaining the mechanism of cross-domain transfer between musical ability and other cognitive domains is crucial for us to understand both the pedagogical and therapeutic significance of music in the early development of children. Despite its importance, current literature still lacks convincing evidence to address how and under what conditions musical abilities can benefit other cognitive domains. In this study, we studied the reciprocal associations between music ability and two other non-musical cognitive domains —— intelligence and reading in 71 typically developing Chinese children from ages 9 to 11 using a longitudinal design. According to the common practice in the previous literature, we broke down musical abilities into pitch and rhythm perception; intelligence into IQ and working memory (WM); reading ability into phonological awareness (PA), lexical tone perception (LTP), rapid automatized naming (RAN), character recognition (CR), and reading fluency (RF). For the transfer effect between music and reading, the cross-lagged analysis indicated that the link is only robust between the two musical abilities and LTP. Specifically, both music pitch and beat perception abilities at age 9 could predict LTP at age 11. Interestingly, LTP at age 9 also predicted pitch perception at age 11, which is a language-to-music transfer, a direction not often mentioned in the previous study. We also did mediation effect analysis to examine whether there were indirect routes between any two domains when no direct transfer could be found. Mediation analysis revealed that rhythm perception ability at 9 could predict CR and RF via RAN, whereas pitch perception ability predicted PA via IQ. For the transfer effect between music and intelligence, correlation test showed

that IQ at 11 years old can only be predicted by pitch perception ability at 9 years old, whereas WM at 11 years old can be predicted both by pitch and rhythm perception ability at 9 years old. But since PA was also shown to be able to predict IQ and WM, we controlled PA in the regression analysis to find that pitch (but not rhythm) could still independently predict IQ (but not WM).

Interdisciplinary implications. This study combines the knowledge at least from three fields: musicology, linguistics, and education in the purpose of understanding how musical abilities can transfer to the other two cognitive domains —— intelligence and reading, and vice versa. Overall, the main findings in the current study highlighted the importance of pitch rather than rhythm in this transfer effect since the perception ability of pitch can independently predict IQ, LTP, and PA (via IQ). Moreover, this study also provides a profile of non-Western participants who speak tonal languages. Since there is no shortage of literature on how tonal language speakers might have a better musical pitch perception ability, this study can be viewed as providing yet another developmental perspective on this line of research.

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Session 3B

09:00 UK | 16:00 HK | 08:00 UTC | G.03 and Zoom

Chair: Prof. Renee Timmers (Music, University of Sheffield)

Participation in the modernist music experience: Assessing the critical reception of Luciano Berio's *Voci* (1984) within the framework of cogitative, psychological, and cultural theories

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Disciplinary background A. During the 1980s and 1990s, several critics described modernist music as too 'difficult' and too 'complex'. This is due to the fact that listeners lost the familiar tonal markers that guided them through their listening of 'pure music', including the recognition of harmonic progressions, motives, themes, and their transformations as well as musical form. This paper examines the cognitive side of music processing to delineate the strands of musical modernism described as 'difficult' and 'complex' in Luciano Berio's *Voci* (for viola and 2 instrumental groups).

Disciplinary background B. To decipher meaning in *Voci*, this study analyses the musical content within the framework of psychologist Patrick Juslin's iconic, intrinsic, and associative code levels. Music critics need to describe and interpret a work within their own conceptual parameters, then evaluate the music within current cultural values, beliefs, and perceptions. To explain the wide-ranging critics' reviews of *Voci* in newspapers and magazines from North America, the United Kingdom and Australia, I draw on reception theory as outlined by cultural theorist Stuart Hall.

Abstract

Ongoing performances and recordings of Berio's *Voci* within the commercial music market is dependent on its overall positive public and critical reception. This paper aims to chronicle and ascertain the significant factors that contribute to the critics understanding/misunderstanding of *Voci*.

Critical reception is inextricably linked with the commoditisation of music. Therefore, critics are vital to how people participate in classical music experiences. Critics not only help fill concert halls, they also help people interpret and understand music both familiar and obscure. A music critic also needs to assume the position of being more knowledgeable, discerning, coherent, and articulate than the average reader. On a commercial level, the critics' role is to supply information to the music consumer without personal biases, prejudices, or cultural intimidation. This study demonstrates that a person's cultural background shapes his/her tastes, preferences, customs, beliefs, and values.

During the 1980s and 1990s, several critics discussed the validity of the modernist aesthetic and disapproved of the stance taken by modernist composers regarding their ambivalent attitudes of their listening and purchasing public. As an example of the open resentment towards modernist music amongst newspaper critics of the mid-late twentieth century, I draw on the scathing commentary of Albert Goldberg (Los Angeles Time) and Donal Henahan (New York Times). Both critics did little to enhance the reception of Voci and to shape public opinions on, as well as encourage their readers to participate in the modernist music experience. I argue that the biases and prejudices of Goldberg and Henahan intentionally undermined an objective review of Berio's music to the public. However, by the twenty-first century, attitudes towards the merits of Voci, and modernist music in general did change. This paper addresses that divergence. I draw on critics of the early twenty-first century who all present a more balanced and objective viewpoint to the reader.

Interdisciplinary implications. This contribution has important implications for better understanding, interpreting, and evaluating the musical content of *Voci*. This study provides listening strategies to enhance the reception of *Voci* that may also be applied to other works of the same ilk. A wider

acceptance of modernist music from the music listening public will promote continued concert performances and new recordings to ensure a recognised place for Berio's music in the concert repertoire of the twenty-first century.

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MIDI Controllers and magic lanterns: Contextualising a performative approach to media archaeology

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Disciplinary background A. Media Archaeology: Dr Martyn Jolly is an Honorary Associate Professor at the Australian National University's School of Art and Design and a magic lanternist. His collaborator and co-lanternist, Dr Elisa deCourcy, is a Research Fellow (DECRA) at the Australian National University's Research School of the Humanities. These two art historians were recently Lead Investigator and Research Fellow on the Australian Research Council Discovery Project Heritage in the Limelight: The Magic Lantern in Australia and the World, and co-edited the Routledge-published text 'The Magic Lantern at Work: Witnessing, Persuading, Experiencing and Connecting' (2020).

Disciplinary background B. Musical Theatre: Dr Charles Martin is a percussionist, electronic musician, and Senior Lecturer at the Australian National University School of Computing. Dr Alexander Hunter is the Composition Convenor at the Australian National University's School of Music. To date these two composer/performer/improvisers and others have collaborated on eight new magic lantern shows, in addition to their work with dance, interactive installations, experimental theatre, and other collaborative new music projects.

Abstract

This paper aims to both outline the activities of our magic lantern performances to date, as well as unpack and discuss the participatory performance practice which has developed as part of these contemporary creative reenactments.

The two approaches which we will bring together are Media Archaeology and Experimental Musical Theatre. As explored in the recent book The Magic Lantern at Work: Witnessing, Persuading, Experiencing and Connecting the magic lantern show — where music, voice and image projection interacted live with an audience — was an important part of popular culture from the eighteenth to the twentieth centuries, forming a media-archaeological substrata to many of today's 'Media, Virtual and Participatory' events.

We have developed an interdisciplinary performative methodology where practice-led photography and media historians directly interact with electronic and conventional musicians, composers,

improvisers, and members of local communities, all with the participation of an audience. Authentic historical photographic and painted images are projected through vintage optical apparatuses, and optical effects are manually produced while a multimedia experience is created for the audience with the triggering of field audio recordings, samples and electronic loops, and instrumental improvisation based on popular historical songs, interacting with the projected images.

Through creative re-use and creative re-enactment, with the frequent direct participation of a contemporary audience with and among whom we perform, we are able to examine the intense affective experience of the magic lantern show as it was historically deployed to mobilise participants within various religious, political, propaganda, spectacular and theatrical contexts.

Our performances frequently engage histories local to our performance venues, and invite the participation of local musicians, poets, and other members of the public to bring these stories to life in an interactive and intimate performance setting.

The casual 'parlour' nature of these performances is maintained both through the intimate and small nature of the performance setting (small halls or marquees with the audience very close to the performers) as well as occasional comments from performers and audience and instructions for participation - no two performances are the same.

This praxis could not be possible without the integration of the acknowledgement of the physical presence of all involved. This embodied performance-led research is informed by a range of contemporary and recent research including Jennifer Walshe, Ashley Fure and Pauline Oliveros, as well as the work of authors Sara Ahmed, bell hooks and Audre Lorde. As our conversations and praxis develop more and more tentacular connections to other bodies of scholarship usually outside the context of music research appear and become generative.

Interdisciplinary implications. This exploration of the performative potential of the wider magic lantern project seeks to unpack and document the researchers' engagement in a dialogue with existing work on embodiment and participation, as well as practice-led research on interactive theatre, fields which tend to be largely separate from 'purely musical' performance research.

While there are a number of examples of reenactments and reimaginings of period media today, this collaborative practice between media archaeologists and musicians sets its sights not on the large-scale spectacle, but rather on the intimate entertainment of the parlour - one in which the audience and amateur performer are central to the realisation of the performance.

Through the real-time integration of historical performance models (domestic parlour entertainments and community theatre) with contemporary performance models (improvisation and dynamic live soundtracks) this project brings a media archaeology research project into the experience of diverse audiences. Examining the relationships between historical and contemporary media forms and musical events provides an engaging opportunity for site-specific community arts participation.

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Attending to attending: performing audience personae in contemporary music

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Disciplinary background A. Practice-led research. New and experimental music practices have long explored fluid movement between composer, performer and audience roles, including audience participation (Nyman, 1974). As composers ourselves, our interest in these topics is personal and enacted in our practice research. We analyse our work in this field alongside other contemporaries', reviewing how socio-musical roles are fluidly explored in recent work.

Disciplinary background B. Performance studies. Philip Auslander's (2006) notion of 'musical personae' is key to our understanding of role relations in performance. Drawing on Goffman's symbolic interactionism (1959), this idea stresses the self-presentation and negotiation of identities in the social realm of musicking, and highlights the physical setting, appearance and manner of performers and audiences as key factors delimiting them. Theatre scholar Caroline Heim (2016) enriches our perspective through her accounts of audience agency in live performance settings.

Abstract

In music as in the visual arts and theatre, prevailing models for participation tend to reductively construe audiences as passive consumers in need of activation after the image of practitioners (Bishop 2012; Rancière 2011). This means the co-creative potential of audiences as audiences is overlooked (Heim 2016). We advocate for attending to, reciprocating, and adopting audience behaviour in/as performance. We argue for listening to audiences and as audiences, reaffirming the responsibility to hold open space for exchange, to put our relations at risk with other relations, to attend to one another. Thereby, we may catalyse novel interactions, hybrid identities, and formats for creative practice, even expanding what 'participation' can entail in contemporary music.

We examine five case studies where the performer-audience relation is a key focus, central to both composers' and performers' efforts—at least as much attention is given to audiencing as to the organisation of sounds, or the playing of one's colleagues on stage. What sets this kind of work apart from prevailing models of 'participation' is that the activities 'peculiar to the spectator' (i.e. audience personae) are embraced and engaged.

Pauline Oliveros' "Deep Listening" (2005) holistically develops diverse behaviours that we typically associate with audiences. Multimodal exercises distance participants from received Western Art Music performer/composer identities and their associated rituals and privileges. Thereby, Oliveros opens space for alternative modes of attention, creativity and interaction.

David Helbich's "Audience Observations" (2011-) is a collection of pieces and projects which draws attention to and subverts the usual roles played by audiences and performers in concert halls and theatres. In "Keine-Pause/No Break", Helbich assumes the role of an 'audience interventionist', observing and noting the audience's behaviour before describing it back to them. This offers the audience the chance to reflect on their behaviour and its influence on the performance.

Claiming audience behaviour as a type of performance opens numerous creative and relational possibilities. In Carolyn Chen's "Adagio" (2009), the performers make emotive facial expressions while

listening to a Bruckner slow movement over headphones. In dramatising and elevating the listener's position above all else, Chen strips the inaudible Bruckner of pretences to canonisation or universality. The facial choreographies radically situate a classic work in the listening bodies and experiences of those specific people on stage. Adagio subversively highlights the power of listeners to trace fresh associations, and even dismantle or remake the canon anew.

Louis d'Heudières's "Laughter Studies 7" (2017-18) appropriates the audience-derived acts of listening and commenting to gain insight into performers' individual perceptions of the world. Through unscripted interaction with an audio score, the performers' manner resembles that of audiences, opening up space for reciprocal listening and empathy to emerge in the concert hall.

Charlie Sdraulig's "one to one" (2018-20) is an intimately staged sequence of three pieces for one performer and one audience member (i.e., audient) at a time. Each pair co-regulates one another's nonverbal rhythms to develop behavioural attunements and social connections (e.g., synchronising a violinist's bow lengths with an audient's respiratory cycles). This dynamic, bidirectional exchange blurs distinctions between roles. Thereby, the interaction moves beyond generic relations to explore an interpersonal dynamic specific to the people involved, embracing manifold differences and varied levels of involvement.

Interdisciplinary implications. For practice research, our case studies reimagine performer-audience interactions in contemporary western art music, which are often by rote and highly formalised; the role of audiences may be just as rigidly delimited as in Classical recitals. The lens of personae—derived from performance studies—attunes us to the social dynamics of musical events, rather than 'disavowing' them (Born, 2017); it assumes that differences in the performances of 'musician' and 'audience member' are of degree, quality, and kind, as opposed to assigning all performance capacity to musicians alone; and it stresses the situated fluidity of self-presentations.

Collectively, our analyses reveal how centring audience personae can emphasise co-creative interdependency over more or less passive reception. Adopting an audience position can lay bare individually differentiated aural experiences and stress multi-perspectival receptions of sound to critique and contest canons. Framing audience behaviour as performance means embracing a wider array of multivocal self-presentations, unfolding along alternative relational vectors. Listening to audiences and as audiences reaffirms our responsibility to hold open space for exchange, to attend to one another.

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Session 4A

10:45 UK | 17:45 HK | 09:45 UTC | Teviot Lecture Theatre and Zoom

Chair: Dr Morag Grant (Music, University of Edinburgh)

The spectator-listeners' participatory roles in Michel van der Aa's stage works, *Blank Out* and *Eight*

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Disciplinary background A. From the perspective of musicology, my paper offers examples of how postopera challenges opera's conventional communication strategy, how it activates the spectator-listener and how it brings the boundary between the genres of art and popular into question.

Disciplinary background B. From the perspective of theatre studies, my paper compares postopera with postdramatic theatre. It shows how, instead of illustrating the drama, postopera's performances create theatrical situations which stimulate the spectator-listeners' individual processes of interpretation.

Abstract

My paper discusses the spectator-listeners' participatory roles in twenty-first-century postopera. As oppose to conventional drama opera, in which the music and actions on stage primarily illustrate the written script, postopera combines various theatrical elements such as stage actions, music, film as well as verbal and visual elements, into performances without fixed meanings – thus, evoking the spectator-listeners' individual readings. In a larger context, the involvement of spectator-listeners can be linked to the democratisation of the art world. To clarify the audience's participatory role in postopera, I introduce Michel van der Aa's multimedial chamber opera *Blank Out* (2016) and his virtual reality installation *Eight* (2019).

Postopera is an umbrella term referring to a variety of twenty-first-century stage works which share certain aesthetic principles. They employ unconventional, often anti-temporal, means of storytelling that are familiar from film and video games. Modern audio-visual technology is employed in their realisations, wherein opera's centuries-old tradition is abandoned: the unity of body and singing voice.

The roots of postopera lie in late twentieth-century postmodernism and minimalism. Postmodernist artists typically challenged the uniqueness of the artwork by using repeated items and by composing

collages based on citations. Instead of creating unique artworks, postmodernists organised unique performances or happenings and emphasised the performative aspects of their works.

Postopera is closely connected with experimental theatre – therefore, Jelena Novak (2013) has linked the phenomenon with postdramatic theatre. Hans-Thies Lehmann (2006) introduced the concept in his comprehensive study on experimental and performative theatre forms of the twentieth century. According to Lehmann, dramatic theatre is based on Aristotelian principles: the events of the plot are causally related to each other. By contrast, postdramatic performances consist of myths, ceremonials, or bodily actions, and they tend to explore taboos and the absurdity of the subconscious. Instead of attaining the satisfactory experience of catharsis, the audience leaves the theatre puzzled or irritated.

The aesthetic elements of postdramatic theatre are also essential to postopera. The utilisation of new media enables neo-narrative strategies. The audience is shown spatially and temporally scattered, disorganized performative actions such as mimes, gestures or dance movements. Postopera thereby challenges the concept of a unique human identity, the idea of a narrative based on causally related events – as well as the nature of theatre as drama. However, postopera create theatrical situations and circumstances wherein the actions and experiences are shared between the performers and the audience.

Eight offers the perceiver an experience via virtual reality. The visitors, wearing VR headsets, walk one by one through an installation of both real and virtual objects. Through certain physical actions they can manipulate the installation, which consists of pre-recorded film scenes, pre-recorded sounds, alongside visual elements. Visitors are therefore involved in the very unfolding of the work: each path through the installation triggers a specific display of audio-visual material, actualized through the visitor's actions. The concept of a unique artistic work is challenged, as are the traditional roles of the composer, the director, the performer, and the listener. Instead of joining in a shared listening experience as part of an audience, each visitor is invited to interact and create a private, personal performance for themselves in virtual reality.

The mystery of *Blank Out* is not revealed at the opera's end, but the enigmatic performance nevertheless provides puzzling stimuli for the active spectator-listener. *Blank Out*'s storytelling is completely discontinuous and non-linear; instead of the unveiling of a temporally organised plot, the events are shown from a variety of perspectives. The concurrent events onstage and on the film are partly unified by the 3D-technique. The audience must construct the meanings of the multi-layered work themselves by active mental process. Significantly, the most important fact in the story is neither told nor shown to the audience – they must figure it out by studying additional background material.

Interdisciplinary implications. The new media generations who are used to the narrative strategies of interactive video games and music videos, might not be satisfied with the conventional storytelling of mainstream opera – nor are they willing to silently contemplate as a listener. Postopera's communication strategy, in which the audience is given the role of an active, creative partner, departs from the practice of mainstream opera significantly and needs to be discussed thoroughly. Furthermore, the post-operatic mix of art and popular can be approached from social and political viewpoints as well as by studying the relationship between the art world and the entertainment industry. Postopera evades genre definitions by combining elements of opera, film, experimental theatre, visual art, and the media industry. Similarly, the research of postopera cannot be limited to the preconceptions and methodologies of musicology alone. Through interdisciplinary research one can perceive postopera from myriad perspectives and create a broad picture of this multi-faceted cultural phenomenon.

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Van der Aa: *Eight* https://www.youtube.com/watch?v=z8zMItj5Upk

Public solitude or participatory experience: The complexity of applause

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Disciplinary background A. This work in this contribution draws on disciplines of musicology and music history, to explore the socio-cultural context of musical performance.

Disciplinary background B. The research described here draws heavily on theories and discussions pertaining to music performance studies/science, applied musicology and practice-led research.

Abstract

To demonstrate how different needs and requirements pertinent to the performance situation on both of the stage, performers and audience members alike, interact and collide in the act of applause. To show the complexity of a phenomenon and a norm which we enact on an almost daily basis.

When a musical live performance is finished or a prime minister has delivered her speech, audience members applaud. When the plane has touched ground, passengers applaud (sometimes), and when the singing of Happy Birthday in the nursery has ended, the children applaud. Of course, there are many different reasons why people applaud: audience members want to show thankfulness or relief, are eager to demonstrate their sophistication and distinguish themselves from others (they know the rules), or simply want to participate in the action or the music. Performers perceive applause as feedback or as a collective thank you.

The situations in which people applaud are fairly similar – they share the division of all those present into performers and audience members. The collective clapping affirms these roles and transcends them at the same time. In the moment of applause, all participate in the sound, rhythm and experience of it, and all together embrace the transition from collective experience back to everyday life.

In my presentation, I will show how different needs and requirements pertinent to the performance situation on both sides (performers and audience members) interact and collide in the act of applause.

Research has shown that applause is a highly complex phenomenon (Heister 1984; Mann et. al 2013; Cochrane 2009); here, physical needs (to move to the rhythm, to let off steam, to participate), the enaction of cultural and social norms (such as the adherence to strict non-applause-laws in classical music), group phenonema (social contagion, synchronicity) and the audience members' willingness to be appreciative (or not) are intertwined and challenge each other. This is especially palpable in the restricted behaviours of classical music audiences which will serve as an example in my presentation.

During applause, people act as a group and as individuals simultaneously. They see and hear, listen and watch, act and react, all at the same time. In a way, applause is not only a means of participation, but also a result of it. In a performance, applause is the one moment of participation for all.

Interdisciplinary implications. My contribution suggests further research in the fields of the musical live performance, bridging historical musicology with performance science, historical anthropology and sociology.

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Participatory applause: Interactions of audience members clapping at the end of a classical music concert

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Disciplinary background A. According to musicological studies of audience culture, applause is the most overt form of participation allowed to the collections of individuals attending classical music concerts (Brandl-Risi, 2011; Small, 1998; Tröndle, 2020). The final round of applause can exhibit many interesting dynamics related to their collective enthusiasm for the performance (Lupyan & Rifkin, 2003), the local applause culture, and what is on stage during the clapping.

Disciplinary background B. Quantitative empirical study of group clapping behaviours has principally depended on participants clapping on request in laboratory settings or A/V recordings from concerts (Neda, 2000) and presentations (Mann et al., 2013). To study the coordination involved in this collective behaviour, we need accurate measurements of individuals clapping voluntarily in a real concert setting.

Abstract

To describe how the appreciative audience members adjust their clapping to each other and the action on stage during the final round of applause, demonstrating their participation at a concert's end.

After the Danish String Quartet (DSQ) performed their last piece at the Music Lab Copenhagen Concert, the audience clapped continuously for nearly two minutes. During that time, the musicians stood and bowed, had scientific instruments removed from their bodies, left the stage, returned to bow again, and finally left the stage for good. The clapping action of individual participants in this concert experiment was captured by a mobile phone on their chests, and these recordings show how individuals' clapping contributed to the collective effect shared with the musicians.

Through the final applause interval, 70 devices captured clear clap sequences, representing over half of the audience at this chamber performance. In some ways, their applause followed expected patterns for a concert audience. They began to applaud over a very short time interval (Mann et al., 2013), more than half starting within less than a second of each other. After 20 s of independent clapping at rates from under 120 BMP to over 200 BPM, the participants shifted to clapping together on a shared beat, a practice that is common for Danish audiences. This group maintained synchrony for over a minute while steadily accelerating from around 158 BMP to 176 BMP, an expected consequence of mutual adaptation during group clapping (Thomson et al., 2018). The coordinated action was strongest while the musicians were on the stage but a subset of independent clapping broke out while the audience waited for the performers to return for their final round of bows.

Participants' claps were evaluated from two perspectives: the alignment of claps, reflecting the dominant shift from independence to coordination, and the distribution of participants' clapping rates over time. Despite some measurement challenges, the shift from independent to coordinate clapping emerges strongly from participants' movements, with the median rate of clapping slowing until a dominant beat takes hold. Individuals' clap sequences confirm that the independent clapping at the start of the applause is a result of individual participants clapping isochronously at their own rate,

separate in rate and phase from their neighbours in the hall. When the audience claps together, they are voluntarily adjusting to the dominant rate and phase of the people in the hall, with little change in the quality of their isochronous clapping action. Drift in the synchronized clapping rate reflects mutual attentiveness while variation in the number of participants contributing to the coordinated claps suggests differences in applause strategy. Many participants opted to coordinate with their peers while some seemed to prioritize reacting to the musicians.

Interdisciplinary implications. The audience is composed of individuals, each with their own experiences and opinions of a performance. Scientific analysis has often reduced this diversity to a single narrative. Here we observe categories of behaviour that are of interest because of the individuality being negotiated by audience members as they adapt to each other and performers on stage. Their agency aggregates into a familiar collective expression of appreciation, but with the right measurement and analysis tools, we can recognize both the group response and participants' individual choices.

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Session 4B

10:45 UK | 17:45 HK | 09:45 UTC | G.03 and Zoom

Chair: Prof. Richard Parncutt (Centre for Systematic Musicology, University of Graz)

Can We Dance? Considering the role and meaning of music in videogames through "thinking in movement"

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Disciplinary background A. Ludomusicology. Videogame music is typically experienced as embedded in the game and activity of gaming. However, the research on videogame music, or ludomusicology, has mostly adopted approaches from traditional musicology, treating music fundamentally as a text with certain function and meaning in accordance with the narrative and mechanics of the game (e.g., Summers, 2016). While the interactive and crossmodal nature of game music has also been acknowledged (e.g., Collins, 2013) there is still a need for theoretical perspectives to account for the integration of game and its music in the experience.

Disciplinary background B. Human-computer interaction (HCI). In the field of HCI a crucial concern has been the development of approaches that take into account the bodily engagement involved in the interaction with technology. One proposal is the choreography-based approach to interaction, which foregrounds the dynamics of the movement as the source of meaning and the way our actions are organized by technologies (Parviainen et al., 2013).

Abstract

The aim of this presentation is to provide a theoretical analysis of the gameplay experience following the choreography-based approach outlined within HCI and to consider the role and meaningfulness of videogame music in accordance with this perspective of gaming as dancelike participation in the game.

Videogame music describes a category of music in which music is not the sole focus of attention but rather embedded into a particular context of game and activity of gaming. With respect to this embeddedness, an important question is how to investigate videogame music in a manner that approaches the experience of videogame music as inherently entwined with the gameplay. We suggest that one problem is a lack of overarching perspective that taps into the common ontological framework underlying both music and games.

In this paper, we aim to provide such a common framework by considering music and gameplay fundamentally as activities. We begin by framing the gameplay through the metaphor of dance (see Kirkpatrick, 2011) and applying the choreographic-based approach to interaction in order to analyze the implications of such reframing. This movement-oriented view presents a third option for thinking the pleasure and meaning of videogames alongside the traditional rule-oriented (ludological) and story-oriented (narratological) views: the gameplay is seen as being about rhythms, embodied action and being involved in choreography set and regulated by the game. We then move on to consider how this perspective of technologically co-constituted choreographies frames the role and meaning of videogame music, suggesting that music is not merely accompanying the gameplay but rather an integral part of the choreography of the participation in the game, which is made meaningful, in a manner of “thinking in movement”, through bodily capabilities for sense-making.

To further the analysis, we utilize perspectives and conceptual tools from HCI to understand the experiential dynamics of interaction with both music and games. Following the choreography-based approach, we discuss phenomenological theories highlighting the primacy of movement for human understanding (e.g., Sheet-Johnstone, 1999) as well as the distinction between objective space and experienced lived space. As more specific conceptual tools, we consider the concept of vitality affects (Stern, 2010), that aims to approach the "liveness" inherent in the movement qualities, and the idea of different levels of movements ranging from most miniscule touches of Micro-level to more large-scale systems of movement on Macro-level (Parviainen et al., 2013). The discussion is also related to the research paradigms within both music (e.g., Leman, 2008) and game research (e.g., Collins, 2013) that consider the embodiment and activity as the ground for meaningfulness.

Interdisciplinary implications. While our main goal is to present the choreography-based approach as a way to investigate videogame music we see it as an equally applicable framework for considering music more generally. Due to its focus on inherent meaningfulness of bodily movement, this perspective could be especially relevant for those interested in considering music in terms of embodied interaction. Moreover, as videogame music may be taken as an example of everyday musicking, the presentation points towards a perspective on music as necessarily contextual activity. Finally, the proposed way of focusing on choreographies and movement qualities of interaction may be helpful in unveiling the experiential similarities between different kinds of media.

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Emotion regulation motives in music listening

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Disciplinary background A. Emotion regulation research

Emotion regulation describes measures taken to influence one's emotional state (Gross, 2002). Recent research not only investigates how people want to regulate their emotions, but also why they wish to do so (Tamir, 2016). Negative emotions, like sadness and anger, can be useful in specific situations,

and may be the goal of mood regulation (Tamir, 2016). Certain social situations, rituals for example, may ask for the experience or expression of certain emotions to facilitate participation, or feeling connected with others. Tamir (2016) distinguishes between hedonic and instrumental motives. The former describes motives which directly focus on enhancing positive (prohedonic motives) or negative (contrahedonic motives). Instrumental motives aim at achieving emotional states to facilitate performance on tasks (performance motives), social interactions and participation in mutual activities (social motives), to gain insight in oneself (epistemic motives), or to find meaning and grow as a person (eudaimonic motives).

Disciplinary background B. Music listening behaviour

Research on emotion regulation through music listening largely focused on different strategies applied by listeners (e.g. Saarikallio, 2008). The questions as to why listeners use music to regulate their emotions remains, however, mostly unaddressed. Investigating motives may prove fruitful in understand how, when, and where mood regulation through music is most useful. This interdisciplinary approach may, for instance, contribute to the question why people already in a negative mood deliberately choose to listen to music of equally negative valence (Van den Tol, A. J. M. & Edwards, 2013). Furthermore, little is known so far about the participatory aspects of emotion regulation through music listening, i.e., which role present or imagined others play in this process.

Abstract

The present research aims to integrate recent theoretical and empirical progress from the field of emotion regulation into research on music listening behaviour. The main research questions are: Do emotion regulation motives also play a role in music listening and do motives differ between regulated emotions? Which role do participatory aspects play for these motives?

As this study is the first attempt to apply this perspective, we chose an open-ended format for our questionnaire (N = 97, Age: M = 37.7, SD = 16.0; Sex: 59% female, 40% male, 1% diverse). Four blocks of questions were presented to participants, asking about situations in which participants listened to music to regulate happiness, sadness, anger, or other emotions, respectively. Participants were asked why they wanted to regulate the respective emotion through music listening. To investigate in how far emotion regulation through music listening is a participatory activity we asked about the number of others present in the situation and we investigated the answers on motives for their importance for social situations beyond specific social motives.

Participants stated 135 episodes in which they regulated their emotions through music listening. Participant's answers on regulation motives were coded according to Tamir's taxonomy by three coders. It was possible to code up to three motives per episode, which resulted in 177 coded motives. Inter-rate reliability was high (happiness $\alpha = .76$, sadness $\alpha = .87$, anger $\alpha = .87$, other emotions $\alpha = .88$). Prohedonic motives accounted for 40% of all emotion regulation episodes, contrahedonic motives accounted for 18%, performance motives for 17%, social motives for 6 %, epistemic motives for 7%, and eudaimonic motives for 14%. Especially other emotions were regulated for social motives (23%) e.g., participating in political activities or being intimate with others. Participants aimed at regulating their emotions to participate in social situations in 20% of the reported episodes. While participants regulated sadness almost exclusively in private (95%), happiness and anger are regulated with at least one other person present in 20-30% of the episodes.

Interdisciplinary implications. Interdisciplinary implications. Approaching emotion regulation through music listening from an interdisciplinary perspective that looks at both the how and why question, increases our understanding of this important function of music listening. Motives for emotion

regulation in a situation are crucial for understanding the complexity of emotion regulation through music listening. The results also indicate that albeit emotion regulation appears to be done mainly in private, it has also important functions for social situations and participating in social activities. The present research is the first attempt to integrate emotion regulation motives into music listening behaviour. Future work needs to further pursue this interdisciplinary perspective and investigate its potential for overall wellbeing.

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Biologists singing: Collective vocalization, posthuman listening, and interspecies audibility

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Disciplinary background A. This research draws on the tightly woven intersection of science and technology studies, posthumanism, and animal studies by investigating modes of listening and observation between species and the interfacing technologies which mediate these relationships. A field work component undertaken in collaboration with a bioacoustic amphibian laboratory interrogates the roles of ecological sciences in the formation of cross-species listening modalities.

Disciplinary background B. This research critically considers notions of vocal emergence within a sound and soundscape studies context by zoning in on nonhuman acoustic communication. By considering how the embodied and participatory musical logic of choral singing might offer an experimental imagination for more-than-human choruses, I try to think alongside critically endangered chorus frogs in a speculative and arts-based form of 'choral' ethnomusicology.

Abstract

The aim of this research is to develop an expansive notion of chorusing which might challenge humanist notions of vocal participation. By looking to bioacoustics as a site of sonic acoustic knowledge and interspecies relation, this inquiry considers the disciplinary production of listening modalities and the musical aesthetics of ecological inquiry.

The construction of the humanist liberal subject voice is bound up in a history which relies on a systematic separation of listening and sounding subjects and objects. But what about when voices join? From Greek theatre to Western musical traditions, the notion of a chorus has muddied the individuation of voice by assembling an observing or narrating mass rather than invoking a self-realizing human subject. By performing a kind of ‘audienceship,’ choral voice beckons listeners into its

fold with aggregational sonic momentum. While interpreting such a phenomenon as musical may be circumscribed to the human, vocal and indeed chorusing behaviours are prevalent across species. My research focuses on locating multispecies voices as features of sympoetic (collectively making) systems as a way to interrogate the primacy of the human within interspecies sonic relationships. This inquiry into voice binds sonic materiality with auditory perception– the two caught in a perceptual loop, one hailing the other in an ever-emerging system.

If choruses are cast as porous operations whereby both listener and listened are included in multiscalar acts of boundary creation, how might a nonhuman chorus relate to a listening human? The field recorder? A biologist? As a part of this research I have partnered with the Amphibian Natural History Lab (University of Campinas, Brazil) during their field season to immerse myself within modes of listening to chorusing frog species via the biologists who listen to them. Through shared experiences of listening in the field, formal and informal interview, and lab and field 'shadowing,' I have used a phenomenological and ethnographic approach to look to perceptual experiences of bioacoustic biologists. Results–expressed through an arts-based approach that blends text with sound design– interrogate the representational limits of field recording, consider the convergence of habitat loss with sung vocal communication, and ponder aesthetic and musical experiences within the practices of behavioural biology.

Interdisciplinary implications. This work addresses critical issues in sound and soundscape studies around nonhuman sonic agency by using a posthumanist paradigm to consider the interfacing role of biological sciences and recording technologies in relation to listening practices and informational exchange. With choir as a model for participatory emergence for the subsumption of the individual voice into a changing whole, I extend a kind of musical thinking into the domain of science, place-making, and environmental ethics in an age of anthropocene and climate emergency. I hope that this work might also highlight human exceptionalism in musicology and extend our ears to imagine futures of companionship rather than dominion with our nonhuman neighbours.

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Session 5A

16:15 UK | 23:45 HK | 15:15 UTC | Teviot Lecture Theatre and Zoom

Chair: Dr Phil Alexander (Music, University of Edinburgh)

Music composition as dialogue: A participatory process of democracy

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Disciplinary background A. Aesthetic Philosophy and Communication Studies. Modernism brought upon a pursuit for innovation. The abstraction within Modernism might delight listeners with novel soundscapes but may also be deemed disorienting by those seeking clear goals and, as such, reduce opportunities for a truly dialogic exchange.

Disciplinary background B. Music Composition and Neurosciences. When listening experiences present minimal stylistic consistency between them, it becomes difficult to anticipate the music's development. The satisfaction derived from successful anticipation sustains participatory listening.

Abstract

The aim of the present paper is to provide an overview of a first system of polyphonic music composition, theory and analysis that relies on Bakhtin's dialogism as well as on research in cognitive sciences to create music dialogue that encourages inclusiveness, participation and collaboration by accounting for how listeners anticipate, experience and perceive music.

This new approach to polyphonic writing gives prominence to unique and distinct voices that collaborate within a multicultural tapestry where imagination, anticipation and cohesion serve to invite participation, and where the merging of voices does not arise from juxtaposed monologues but, rather, from the temporal unification of unique and distinct parts forming a multi-level narrative of reflexivity. Examples will be shown to this effect. In addition, this personal method of composition aims to supply tools that other musicians can opt to employ when endeavouring to enhance inclusion and participation in music. The presented framework also serves as a method of music analysis to explore collaborative social models where distinct instruments or musical voices are treated as individuals within a collective. This method accounts for how listeners typically form auditory streams according to research in music perception and cognitive sciences, and proceeds to the deliberate handling of musical parameters (interval size, timbre, temporal relations, contour and motion, harmonic relations, dynamics, etc.) in order to produce a given effect or a type of dialogue. Its main characteristics are a deliberate regard for structural and textural weight as well as the consideration of harmony as relational, dynamic and developing.

Interdisciplinary implications. Musicology has recognised that unveiling the power of music begins when considering it an integral part of identity and society. What then can be said of the converse relation: identity and society as scored within the music itself? In other words, what do power dynamics within the music reveal, and how does one compose participatory dialogue as an invitation to communicate and participate in a gesture of democracy? By examining the many ways that balance can be achieved within music dialogue, inclusion and social collaboration become focal points to better understand power relations and negotiations within the music and between ourselves.

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Dissensus, refusal and participatory music: Negation and rupture in *Crowd in C*

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Disciplinary background A. Music Composition

Disciplinary background B. Critical Studies in Music Technology and Political Theory

Abstract

In this paper, I will explore the formal, micro-political, and typically consensus-based space that participatory music works engender by analyzing *Crowd in C* by Sang Won Lee. Taking its moniker from Terry Riley's well-known minimalist work, *Crowd in C* is a web-based instrument, computer music system, and participatory work of music that encourages social interaction by offering audience members the option to create and modify their own melodies through a simple graphical user interface (GUI). Focusing on the audio-visual documentation and the work's codebase, I will analyse participant actions by applying Jacques Rancière's logic of emancipation to the micropolitical and normative space of *Crowd in C* and show how these moments and actions evoke a theory of dissensus. Finally, I argue that the established framework for sensing and sense-making in this space can be ruptured by musical and political processes.

By examining participants' potential to both disrupt or refuse the performance of *Crowd in C*, I will show how these actions can complicate the norms and aesthetics of participatory music creation. For example, interrupting a participatory musical work, breaking the rules of the participatory 'happening', and mangling or purposefully misinterpreting the intentions of the composer fissure the common space and draw political power away from the artist's hegemony over the poietic process. It also undercuts the consensus-based norms of the concert music experience. Further, while refusal in small amounts may hand local political power over to those who adhere to the normative, participatory space and mode of production, mass refusal can usurp the aesthetic, social, and ethical

dimensions that ground participatory works: instead of being an abdication of power, refusal en masse collapses the space of the participatory music experience. Through the excavation of these moments within performances of *Crowd in C*, I will put the literature on participatory computer music systems in conversation with post-political critique and Rancière's theory of dissensus.

Interdisciplinary implications. This paper therefore has broad implications for interdisciplinarity within musicological study. For one, by highlighting *Crowd in C* and analysing the effervescent Rancièrian political moments in the musical piece, I argue that the low-stakes environment of a participatory music setting, subtle as it may seem, offers valid commentary on theories of the post-political, as well as on Rancière's politics of aesthetics and theory of the political. Further, the technology-based mode of music making in Lee's work incorporates themes of cybernetics, virtuality, and human-computer interfaces. Finally, because of the nature of Lee's work, participation (or disruption and non-participation) in musical spaces is central to the topic of this presentation. All the above mark a broadly interdisciplinary line of argument, which draws from music technology and musicology, political theory, and sociology.

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A case study in developing person-centred approaches to evaluating participation in Community Music

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Disciplinary background A. Music Psychology informed mixed methods and a person-centred approach as the most suitable means to capture and understand the multiple and varied aspects of a complex intervention.

Disciplinary background B. Community Music's principles of facilitating creative and musical potential of all participants provided the area of interest for investigation.

Abstract

Aims of this research were exploratory, seeking to identify and understand key psychological and communicative processes taking place during Community Music workshops.

Community music (CM) can have powerful impacts on the lives and musicality of people with additional support needs (ASN). A previous study found that music workshops for a group of young adults with diverse ASN led to an ongoing enthusiasm to engage in music; wider recognition of musicality; increased self-confidence; being happier and/or more relaxed; and better ability to interact with unfamiliar situations and people (Wilson & MacDonald 2019). A second study with the same CM organisation demonstrated improvements in individuals' self-expression, confidence, mood, and social skills across three groups of varied ages and abilities in different areas (MacGlone et al., 2020). Therefore, further investigation is required to identify which aspects of the interventions were effective in achieving these outcomes, from both practitioners' and participants' perspectives. For this reason, this paper's focus explores communicative processes between workshop participants and practitioners during the workshops. In keeping with person-centred research, capturing and understanding participants' experience may present particular practical challenges, for example, when researching a group comprised of people with different ASN.

Both qualitative and quantitative data were gathered from the second study mentioned previously (MacGlone et al., 2020) to address the aims. Interviews were held with 5 community musicians which investigated their approaches to and experiences of delivering the workshops. Interviews were recorded and transcribed. Thematic analysis, which seeks to identify, analyse, and report patterns (themes) within data (Braun & Clarke, 2014) was applied. Quantitative 360-degree video data were gathered and analysed from 1st, and 10th workshops of a 10-week programme from one resource centre. Twelve (4m, 8 f) participants were recruited with ages ranging from 22 to 67. Data from 6 female participants and 1 male participant were gathered, the other participants' data were not included due to absence. Video data sampled were from the same section of the same song. An analytical choice was to focus on participant gaze interactions, as this has been used in music therapy research as a measure of participation (e.g., LaGasse, 2014), however this potentially valuable approach is not commonly used in CM. Gaze events, where a participant initiated looking at another participant or practitioner were counted over the video extracts.

Three themes describing dimensions of interpersonal processes in the workshops were identified. Individualised communication highlighted how the practitioners tailored communications and activities to meet and accommodate participants' preferences and needs. Humour was used frequently as a means to demonstrate that practitioners considered themselves on the same level as

participants. Building relationships was prioritised over the course of the workshop programme; consistent patterns of engagement were maintained by practitioners to achieve this, based on an open, friendly approach.

From the analysis of sampled video data, 6/7 participants showed an increase in gaze events between the two time points, for 4/7, the number of participants looked at also increased. In paired-sample t-tests, there was no statistically significant result found. Cohen's ds was applied as a suitable measure of assessing effect size; the result, 0.25, indicated a small effect size using benchmarks from Cohen (1988).

Interdisciplinary implications. Qualitative results demonstrate participation was facilitated both at an individual level through exploring and integrating participants' preferences but also at a group level where humour was used to create a shared experience. While quantitative data were not statistically significant, further detail and a new perspective was gained through capturing interactions within the circle formation often used in CM workshops. There is potential for using this measurement with a larger number of participants to assess participation for those with ASN in a non-clinical setting. While it is valuable to note that gaze interactions increased, future work could include measurement of other modes of communication (e.g. gesture, proxemics) and how they may correspond with practitioners' verbal and musical interactions. Main contributions of this paper offer an approach for gathering important multimodal information about participation as well as highlighting importance of key interpersonal processes as described by practitioners. It bridges Music Psychology and Community Music in that psychological methods used were informed by Community Music's holistic research approaches.

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Session 5B

Thursday 9 June, 16:15 UK | 23:45 HK | 15:15 UTC | G.03 and Zoom

Chair: Dr Annette Davison (Music, University of Edinburgh)

Listening to listeners: Embodied music cognition and intersectional practices

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Disciplinary background A. Systematic musicology is an interdisciplinary field that uses neurological, psychological, and physical science frameworks, among others, to analyze the physical and cognitive elements of musical experience. This field is often considered a branch of the so-called hard sciences, and uses music as a medium for analyzing concepts in the cognitive, biological, and physical sciences.

Disciplinary background B. Ethnomusicology is a branch of music research that considers the cultural, personal, and social structures and implications of music. This type of research utilizes methods in the social sciences along with musicological analysis to consider music in community. Ethnomusicologists regularly engage with methodologies that pull from feminist studies, queer studies, critical race theory, and other intersectional frameworks.

Disciplinary background C. Intersectional feminist studies are transdisciplinary in nature, and consider the effects of gender, race, class, sexuality, and various other factors as determinants of the analytical process. Scholars in this field question the applications and analytical frameworks of the academy, and invites critical engagement with their own social and cultural contexts when engaging in academic discourse.

Abstract

This presentation asks music scholars to consider embodied musical experiences in order to imagine new ways of inviting participation into their research. By considering the embodied experiences of music listeners through a research framework that privileges open observation and listening over asking, this participatory framework allows music scholars to engage with listeners, and with listening, in a mutual process of learning that complicates the often unexamined binary of the researcher and the researched in music scholarship. This presentation's applied example synthesizes ideas from systematic musicology, ethnomusicology, and intersectional feminist theory to invite participants to engage with listening through these interconnected lenses.

Systematic musicologist Marc Leman's Embodied Music Cognition uses mediation technologies to analyze corporeal responses to music listening. Leman's work foregrounds the listener's embodied participation in the process of music through corporeal articulation. This presentation engages critically with Leman's text while putting its more generative methodological and theoretical assertions into conversation with perspectives on embodied participation from the fields of ethnomusicology and intersectional feminist theory.

Ethnomusicologist Tomie Hahn considers embodied knowledge expressed through performance. Hahn's ethnographic focus invites analysis through open observation, allowing the observation process to guide her conclusions. Both Hahn and Leman engage with intentionality and with the

embodied experiences of musical participants, though Hahn's works focus on the embodied experience of the performer.

Intersectional feminist scholars Audre Lorde and Robin Wall Kimmerer engage with embodiment through the intersecting lenses of gender, race, sexuality, and biology to consider ways of engaging with these topics through the articulations of the body. Lorde invites readers to center her conception of the Erotic, the depth of satisfaction and feeling, as an important source of power in scholarship and in life. Kimmerer explores the connectedness of all beings on the earth through Indigenous ways of knowing and biology. She urges scholars to focus on listening, rather than relying on the entitlement of asking questions, to guide their scholarship.

This interactive presentation invites participants to engage with a modified version of one of Leman's applied experiments, to be considered through intersecting lenses put forth by Hahn, Lorde, and Kimmerer. This presentation invites participants to be fully engaged and involved in nearly every step of the research, including formulating their own research questions. This presentation expands the participatory capacity of the music listener beyond interlocution and into the research and analysis itself.

Beyond engaging with the theoretical and disciplinary frameworks which inform the corporeal experience of the music listener and the potentials of their participation, this presentation invites listeners to participate in an applied exercise in which they engage with their own embodied interlocution while releasing the need to ask questions to structure their work. After first asking participants to draw a contour along with a listening example, I invite participants to reflect on the physical space they are in and on the sensations they are feeling. Following this reflective moment, I share my analysis of the theoretical perspectives that this research synthesizes, considering Hahn's engagement with embodied knowledge and open observation while following Leman's foregrounding of the listener, and looking to Kimmerer and Lorde to release the inclination to ask questions in order to foreground the listener's participation and the deep satisfaction of an embodied musical experience. Finally, participants are invited to work in small groups to reflect on their experiences. The presentation concludes with a discussion among all participants in which they are encouraged to share their reflections.

Interdisciplinary implications. In applying principles and experimental practices of embodied music cognition through the lenses of other interdisciplinary music scholarship, this presentation considers ways that ethnomusicology, systematic musicology, and intersectional feminist theory can enrich each other through inviting musical interlocutors into full participation. Implications for future work could involve more deeply considering the listener as a participant in interdisciplinary studies of music. Engaging with open observation, deep listening, and the Erotic invites more complete participation from the listening interlocutor, which can expand research in each of the explored disciplines. Because these works intersect with each other, future research in any of these fields could be enriched by this interdisciplinary inquiry.

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Beyond WEIRD and towards the decolonisation of music for wellbeing and health

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Disciplinary background A. Background in critical anthropology of music for wellbeing and health. The recent surge of interest in how music is used in everyday life to support wellbeing and health (Sheppard & Broughton 2020; MacDonald 2013) has been characterised by an over-representation of Western, Educated, Industrialised, Rich, and Democratic societies (WEIRD) (Bradley 2012; Henrich et al 2010). This proposal takes a critical stance regarding pervasive WEIRD biases in the current understanding of music for wellbeing and health.

Disciplinary background B. Background in the embodied, ecological, and enactive -"4E"- cognitive science and the philosophy of participatory sense-making (PSM). The proposal builds on PSM and 4E's fundamental hypothesis about mind and behaviour as shaped by the continuous coordination between body, brain, physical and social environment at and across multiple timescales (Chemero 2011; Loaiza 2016; Schiavio et al 2017; Moran 2014).

Abstract

Our aim is to identify an alternative understanding of music for wellbeing and health grounded in anthropological accounts of Afro-Brazilian music [9,10], and explore a theoretical framework and methodological implications that link this alternative understanding with 4E conceptions of irreducible ecology between body, mind and environment and coordination across multiple spatio-temporal-scales.

WEIRD-based research conclusions have tended to endorse assumptions about music, wellbeing, and cognition that are couched in terms of individual-centred processes and internal psychological mechanisms. Anthropological accounts of, for example Afro-Brazilian music, present an important alternative understanding of music for wellbeing and health, namely music-as-health-establishing. The process of musicking in ritual and festival contexts establishes health in its maintenance and repairing of relationships (or 'coordination') with ancestors, each other, materials and environment (Daniel 2005).

By foregrounding this holistic, ethnographic conceptualisation of music's socio-functional connection with health, we eschew methodological and ontological individualism and seek to contribute to a decolonising research position in cognitive science (Smith 2013). Furthermore, we see a connection to unorthodox 4E approaches to cognition that emphasise the situatedness and irreducibility of cognition (not restricted to the 'head' and not separated from body and environment) (Loaiza 2016; Moran 2014). This connection offers a theoretical and methodological framework for joint advancement.

Highlighting the relationships between coordination, music and health furthermore helps to understand how people can use their knowledge and heritage - as embodied in coordinated activities - to recover and reorganise their experiences of wellbeing. This has particular relevance in the disrupted context of the pandemic. Our critical starting point takes into consideration the interactions between dissimilar forms of knowledge and promotes marginalised knowledge about musical healing.

Interdisciplinary implications. Our proposal establishes new interdisciplinary insights by bringing together 4E cognition, anthropology and music for wellbeing and health. It shows concrete ways in which 'traditional or holistic' experiences of ritual healing and 'novel' thinking can be married into new synergetic understanding. Questions raised in this process include: Are the efforts to make music research more inclusive and the larger project of decolonisation of research equivalent? How can innovative ways of framing the subject of study through 4E approaches to music cognitive science move us forward towards a decolonising view? What innovations in methods for empirical research are required to support holistic ways of understanding music and health and that moreover promote the voice of marginalised communities in a non-individualist manner?

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Session 6A

Friday 10 June, 11:30 UK | 18:30 HK | 10:30 UTC | Teviot Lecture Theatre and Zoom

Chair: Dr Dr Anne Desler (Music, University of Edinburgh)

Alone, together: The production of female soprano voice in Oxbridge chapel choirs

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Disciplinary background A. This paper analyzes the vocal experiences of female sopranos singing in chapel choirs in Oxford and Cambridge Universities (Oxbridge). I discuss vocal tension and the wide discrepancy between technique learned in voice lessons and technique implemented in choir within the fields of vocal pedagogy and empirical performance. These ‘solo’ and ‘choral’ voices are discussed within the context of the laryngeal development of 18-21 year old women within the Oxbridge chapel choir tradition (Caldretti 2017; Goodwin 1980; Olson 2010; Sweet and Parker 2019).

Disciplinary background B. The second disciplinary area relates these pedagogical and health concerns to their philosophical counterparts in voice studies. Boy trebles have sung the top line in the Oxbridge chapel choir tradition throughout its history only to be disrupted in the 1970s by the addition of women to the top line in some choirs (Day 2018, 229). I analyze this phenomenon within the context of philosophical arguments surrounding female voice (Cavarero 2005; Dunn and Jones 1994; Lochhead 2009), and current voice studies theories about performed timbre (Eidsheim 2019) through the lens of the Derridean term, hauntology (Harper 2009).

Abstract

I theorize that the voice of the female soprano in these choirs is directly influenced by the presence of the ideal and institutionalized boy treble voice, perpetuated by conductors, voice teachers and the sopranos themselves. These three participants together produce a voice which creates both physical and symbolic tension for the sopranos through a hauntological effect.

Through an online questionnaire distributed to sopranos, conductors and voice teachers of Oxbridge chapel choirs, I analyzed their responses as three participatory stakeholders in the dynamic production of voice in chapel choirs. I focused on participant observation and the interaction of technical concerns communicated between participants. The responses describing sound preference clearly outlined a distinction between a solo/female (solid, full, expressive, and colorful) and choral/male (weightless, pure, aloof and clear) vocal stereotypes as reflected in historical associations of feminine emotionality and masculine reason (Lochhead 2009). I suggest that both the recent incorporation of female sopranos into this static tradition and the gendered associations with voice perpetuated by all stakeholders produce a third voice outside of the gendered dichotomy as the women work to fit their voices into the sound ideal – the female disembodied voice.

I argue that the female soprano's voice in Oxbridge chapel choirs is haunted by the boy treble voice. The echo of this voice they perform as influenced by multiple participants is haunted by the female's "natural" voice, creating a "hauntological," or obfuscating effect. The embodied ideal itself restrains the female voice into one norm of freedom, resonance and fullness, influenced by and influencing listeners in a circular relationship (Eidsheim 2019). Even though the female disembodied voice is haunted by its "natural" self, its presence as a "restrained" voice frees the female identity of its restraining vocal standard. Rather than simply arguing that the embodied female voice adds something new to the chapel choir tradition, I acknowledge the diversity of female voices. I argue that female sopranos influence and are influenced by a multitude of voices, an interaction of internal, external, dis/embodied, and hauntological voices, creating tension of the past, present and future in Oxbridge chapel choirs.

Interdisciplinary implications. While vocal health and pedagogy have previously fallen outside of the musicological sphere, the interdisciplinarity of voice studies has increasingly incorporated these fields (Eidsheim 2015). This method, using vocal technique and the psychological experience of vocal production through the perspectives of three participatory stakeholders, brought sedimented gender inequalities to light. Therefore, it is important to continue this type of interdisciplinary work, connecting health and wellbeing to theoretical arguments and historical accounts, to create a more holistic understanding of vocal experience.

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"We do opera!" Participation in German opera houses: institutional strategy and aesthetic concepts

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Disciplinary background A. My research has its origin in performance studies understanding opera and music theatre as performative phenomenon – with special consideration of instrumental and vocal practice.

Disciplinary background B. Exploring contemporary music theatre practice in Germany, I see a necessity to involve theories and methods of social sciences and educational theory to fully understand institutional influence on aesthetic products and production.

Abstract

Based on concrete examples, this paper will elaborate on participatory practices between the agenda of cultural policy, audience development goals and everyday practice of German music theatre houses within the context of urban society.

State funded opera houses in Germany are becoming increasingly a target of public criticism. The combination of certain factors – for example diversification of urban audiences, digitalization, changes in aesthetic demands etc. – raises questions of institutional legitimacy and thus a certain state of crisis. My research has shown that opera houses develop systematic strategies to counter these kinds of transformative powers on the one hand and the related fundamental institutional criticism on the other: participatory formats can be determined as one of these strategies. Participatory formats can not only be seen as an artistic development within the portfolio of events that music theatre houses offer in addition to its main events, i.e. opera performances, but also as strategic action to gain new audiences, meet cultural-political demands and generally opening up to a divers urban society. What measures are being developed and in what way do these measures raise questions of actually cultural

participation? How can these measures be realized within the structural and aesthetic requirements of an opera house?

Interdisciplinary implications. Opera and music theatre as contemporary performative practice can no longer be explored by looking at musical scores only. Bringing musicology, performance studies and social sciences (and esp. its methods) together has the potential to explore the many interdependencies between institutional structures, social participation and artistic demands that contemporary music theatre is so heavily characterized by.

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Is there a conservator in the room? Electroacoustic music preservation in an era of participation

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Disciplinary background A. Historical Musicology (related to electroacoustic music studies)

Disciplinary background B. Conservation of Cultural and Artistic Heritage (related to contemporary art conservation studies)

Abstract

The aim of this paper is twofold: to foster the participation of the contemporary art conservator in studies of electroacoustic music preservation; and to attempt to bring the 'know-that' closer to the 'know-how', through conservators' expertise.

When dealing with the maintenance of the contemporary musical repertoire, especially considering the long-term sustainability of electroacoustic music, composers, interpreters and musicologists are usually faced with challenges similar to those already long handled by contemporary art conservators when working towards the preservation of performance-based artworks in the realms of conceptual art, installation art, performance art and new media art, to name but a few. With the dematerialization of the art object in the 1960s new conservation paradigms emerged along with a contemporary conservation practice. Unlike the traditional view of conservation that freezes artworks, as it deals with the maintenance of the work's physical integrity as closely as possible to its original state, an

ethnographic-based contemporary art conservation practice became more usual. One that is particularly concerned with the management of change and with the notions of authenticity and artistic intent.

In fact, every conservation treatment, intervention or procedure inevitably comes with change. As in the past, conservators are still struggling in defining the limits of their interventions or the extent to which they can change a work of art. This situation is even more complex when conservators have to deal with the conservation of performance-based artworks after the 'original' event, because: i) they change over time more significantly than material-oriented artworks, and this is in part due to the fact that ii) a creative endeavour is inevitably present in any re-enactment or activation, much as in any musical performance.

Departing from this backdrop, this paper aims at presenting a first glance on whether conservators' participation can reshape and reappraise the electroacoustic music preservation practice, through a deep reflection upon current conservation principles, ethical guidelines or codes of ethics, to be analysed in the light of the historically informed performance practice, bringing together theory and practice.

Interdisciplinary implications. This paper brings together two areas of expertise, which are not usually connected, and yet a cross fertilization could be fruitful for both domains. The author has already fostered the benefits in bring to conservation literature a connection to musicological practices (Nogueira et al 2016; Marçal et al 2016; Marçal et al 2018; Nogueira forthcoming). It is time now to make the opposite journey, by connecting musicology to other facets of the ethnographic-based research as it informs contemporary art conservation practices.

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Session 6B

11:30 UK | 18:30 HK | 10:30 UTC | G.03 and Zoom

Chair: Prof. Raymond MacDonald (Music, University of Edinburgh)

Machinic rhythms: Improvisational systems and more-than-human participation

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Disciplinary background A. The first disciplinary background is philosophy of technology. My academic background is in continental philosophy, and my recent research, as part of the research project 'The Future of Indeterminacy: Datification, Memory, Bio-Politics', has been increasingly concerned with how the study of technology and digital cultures contributes to a rethinking of themes of action and perception across biological and technological boundaries.

Disciplinary background B. The second disciplinary background is improvisation studies. I have a long-standing interdisciplinary interest in experimental music and philosophy, and I have developed this in a recent collaboration with the composer and theorist Professor Peter Nelson (University of Edinburgh).

Abstract

This paper aims to bring recent philosophical and interdisciplinary research on technology to bear on practices of improvising with non-human, technological partners. It addresses two examples in the

historical work of David Behrman and the ongoing work of George E. Lewis in order to highlight some key features of what it means to participate in more-than-human improvisational situations.

In this paper I reflect on the interactive computer-based improvisational music systems of David Behrman and George E. Lewis to ask questions of what it means to participate in an improvisation – questions including, Who or what are the participants here? How can we understand their 'entanglement' and what constitutes their relations? What does it mean to act in such an entanglement? How do the participants negotiate with their partners in the improvising situation? I examine the system set up by Behrman for pieces including the evocatively-titled Interspecies Smalltalk (1984), performed with the violinist Takehisa Kosugi, and Lewis's constantly evolving Voyager software (1987-), and draw from recent theorisations of more-than-human and distributed perception in order to give an account of the complex, diverse, intersubjective, multi-scalar relations that are enacted in the improvising situations these works take place through.

In particular I work with a semiotic notion of 'rhythm' that I have recently developed with the composer and theorist Peter Nelson, drawing from performance studies and the philosophy and theory of time, in order to reflect the contingent, dynamic ecology of mutable participants that make up these improvising situations. In using this account to explicate the diverse human, non- or more-than-human biological, and technological forms of participation that are evidenced in these improvising situations, I integrate challenges to the centrality of the human made by posthumanist, materialist, and other theoretical movements, but also counter the rejection of subjectivity sometimes present in those discourses. By studying simple interactive systems, in Behrman's case, and systems in process, in Lewis's case, I aim to provide suggestive hints for how interaction and participation can be conceived in the more complex and sometimes less, or differently, interactive systems used in contemporary musical practices dealing with machine learning and other AI processes.

Interdisciplinary implications. This paper will contribute to bringing improvisation studies into closer and more rigorous dialogue with philosophy of technology and other contemporary work in digital culture. It will build on fledgling work thinking of improvisation involving more-than-human participants, building on my research specialisms in philosophy and my interdisciplinary work with music and art scholars.

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Learning enactivity: Can Alexander Technique-led music training enhance proprioceptual skills and awareness in dyspraxia?

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Disciplinary background A. My use of auto-ethnography derives from my PhD research in ethnomusicology, broadly a combination of music and anthropology.

Disciplinary background B. My background in cognition stems from my research developing models of timbre analysis, based on gesture and cognition, which I applied to Japanese-western cross-cultural music.

Abstract

I aim to show how Alexander Technique-led music praxis can increase proprioceptual awareness in dyspraxia.

I am a dyspraxic cellist. Dyspraxia (developmental coordination disorder) is a neurodevelopmental disorder like dyslexia and ADHD, and affects visuo-motor coordination, and gross and fine motor skills like those used for playing a musical instrument. A dyspraxic may have decreased musical enactivity––primarily proprioceptual and visuo-motor embodiment—(Schiavio and van der Schyff 2018, Hayes 2019) and participatory sense-making (Gallagher and Lindgren 2015: 394), but this may be subtle and depend on: the musical activity, instrument, notation, and the individual. I was not identified as dyspraxic until the first year of my music PhD and during my studies I started the cello with a teacher who also teaches Alexander Technique.

The enactive account constitutes embodied, embedded and extended knowledge; knowledge dependent on the body, within a socio-cultural context, and arising from co-dependent interactions (Schiavio and van der Schyff 2018, Hayes 2019: 449), which last Gallagher and Lindgren (2015: 394) consider participatory sense-making. Alexander Technique is enactive, focusing on increasing embodiment and reducing physical tension through "a bottom-up sensory-led experiential approach" (Easten 2021: 5) developed in teacher-led interactions. Could this participatory sense-making help me fine-tune proprioceptual-led embodiment in music performance and reduce inhibitory tension? As a dyspraxic, I am inviting my more disembodied body to participate in sense-making and become more proprioceptually and visually embodied by increasing my sensorimotor cross-modality and responsiveness.

My auto-ethnographic (Ellis et al. 2011) account uses my observations and reflections of learning cello and my lesson diary to consider how I am learning to inhabit my body more effectively in cello performance, where I am embedded in both western art music and Alexander sense-making. Perspectives from psychology, neuroscience and medicine provide more detailed understandings of dyspraxia and common therapies, albeit with a paediatric bias.

Music has rarely been considered an intervention in dyspraxia per se, which Díaz-Pérez et al. (2021: 1216) find surprising given the well-known benefits of music, especially when combined with movement, to children's cognitive development with improvements in motor skills, attention, planning and memory. Furthermore, evidence suggests the auditory-motor feedback loop sends rhythmic signals to muscles without a mental representation taking place (Thaut 2005: 48), a sensorimotor process useful to address dyspraxic motor dysfunction. Given this, music has potential as an intervention for dyspraxia to improve motor coordination, with improvements increasing

possible engagement in, and performance of, dyspraxics in musicking and other cognitive domains, although activities like sightreading notation (of any cultural kind) may be problematic.

The Alexander Technique ethos, of developing integrated embodiment, informs my cello teacher's traditional western art music pedagogy (Schiavio and van der Schyff 2018). The student's musical praxis is centred in embodied knowledge and working on this may involve anatomical foci and/or whole-body awareness, via auditory-visual-spatial motor exercises, anatomical and biomechanical description, motor gesture metaphor, and diagrams, videos and mirrors, to enact the embodied knowledge. Crucially, his enactive musicality means he approaches a student's praxis by considering what they are doing physically rather than forming disembodied judgements. Through this participatory sense-making, my proprioceptual and visuo-motor embodiment, and sensorimotor strategies have improved, which has boosted my music performance.

Interdisciplinary implications. Although this experiential research has developed from one person, the enactive pedagogical approach (embodiment, embeddedness and participatory sense-making) has significant adaptive potential in music training and particularly for using music as a therapeutic intervention in dyspraxia. Participatory sense-making could address (dis)embodiment and engagement of dyspraxics in musical and non-musical activities. A wider study of this kind would require an interdisciplinary collaboration working with, for example, music therapists and dyspraxics (including dyspraxic musicians) and neuroscience/psychology researchers.

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Metro-rhythmical experience in dance and music as the participatory cross-modal syntactic processing

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Disciplinary background A. Biomusicology: Music is an example of the Humboldt system (Merker, 2002) which consists of a restricted number of units organized according to particular rules. The arrangement of these units is often called 'syntax' and it necessitates a special form of neural processing (Patel, 1998). The neural processing of musical syntax is based on two types of analysis (i.e. spectral and temporal analyses) (Zatorre, Belin, & Penhune, 2002) which result in the experience of musical pitch and rhythm hierarchies. As a rhythm hierarchy is experienced as a periodical scheme of accents (meter) that occurs when we listen to a succesion of rhythm measures (rhythm) the hierarchical patterns in this domain can be called 'metro-rhythmical patterns.' However, while the hierarchical schemes of discrete pitch patterns seem to be unique to music, the metro-rhythmical patterns can be produced both in the auditory and motor domains by the means of vocalizations and body movements respectively. As the result, the metro-rhythmical part of musical structure can be interpreted by the means of body movements in dance (Sievers, Polansky, Casey, & Wheatley, 2013).

Disciplinary background B. Psychology of Music: The experience of rhythm hierarchies, being pre-conceptual and motor in nature, became the cross-modal mental reference of syntactic relations as the result of the evolution of cortical and subcortical interactions. This view is supported by the facts that the experience and recognition of metro-rhythmical patterns does not necessitate any awareness of conceptual properties, and that the auditory-motor synchronization – the ability that is crucial for the production of rhythm syntax, is based on cortico-subcortical loops (Li et al., 2015).

Abstract

Music and dance are vital components of human togetherness. The main aim of this presentation is to show that our sense of participation in dance and music is based on the syntactic processing of metro-rhythmical and pitch hierarchies. In the case of a metro-rhythmical hierarchy this sense is related to cross-modal processing which is a functionally different mental tool in comparison to the syntactical processing of musical pitch.

In contrast to the standard view that musical syntax is a relatively uniform entity (Lerdahl, 2013; Lerdahl & Jackendoff, 1983) it is suggested that the metro-rhythmical experience in dance and music relies on a qualitatively distinct ability that is separated from the ability to process pitch hierarchy in music. As a result, both pitch syntax and metro-rhythmical syntax should be treated as separate phenomena. Moreover, the participatory cross-modal character of metro-rhythmical syntax allows us to 'translate' musical patterns into dance movements and vice versa. This view is supported by neuroimaging studies which reveal activity within the basal ganglia and the motor cortex during the recognition of metro-rhythmical patterns in music and dance (Li et al., 2015). These results also suggest the possible different roles of different cortico-subcortical loops in the processing of various musical features. The different involvement of three cortico-subcortical loops (i.e. motor, associative, and limbic loops) in the processing of music and dance syntax will be discussed. In addition, the possible evolutionary origin of these two abilities will be presented. Although some scholars have proposed that musical rhythm is evolutionarily older than musical pitch (Mithen, 2006) the question of their functions remains open. The possible solution of this issue is that both metro-rhythmical and pitch syntaxes are related to a consolidatory function. However, the difference between these

syntaxes can be based on the level of sublimation. While metro-rhythmical syntax is simpler and cross-domain, pitch syntax is more elaborate and solely auditory.

Interdisciplinary implications. Understanding of the participatory character of metro-rhythmical hierarchy in dance and music may be helpful in musical didactics by indicating which performance element our attention should be focused on in order to obtain a desirable effect in the listener. It can also be helpful in analysis and interpretation of music, which currently lacks objective tools for evaluation of metro-rhythmical content of music.

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Video Flashtalks

Shifting identities: Reflections on a composer-machine-performer dynamic

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Disciplinary background A. The work is based in the broad discipline of musical composition.

Disciplinary background B. The work is also informed by the authors' backgrounds in performance science.

Abstract

This paper examines joint musical creation between the authors as they break down the traditional composer-performer hierarchy through improvisation, computer interactivity, and collaborator feedback. Through an analysis of their collaborative work, the interaction between artists toward creativity and expansion of their practices will be the central concern of this flash talk.

In recent decades, collaboration in performing arts has shifted toward equally creative roles. In music, those building on the Modern European tradition have deconstructed the composer-performer-listener hierarchy in favor of collaborative creative activity that questions authority and authorship. The paper discusses and reflects on the nature of recent collaborations between the two authors, Taylor Brook (composer/ coder) and Catherine Lee (oboist/improviser), describing these collaborations and their relationship to the historical contexts of sound making as informed by deep listening, sound studies, human-computer interactivity, machine creativity, and historical relationship between composer and performer. The central discussion will focus on a project involving the development of a computer improviser that served as an intermediary between the two artists.

Interdisciplinary implications. The implications for musicological interdisciplinarity lie in the questioning of traditional roles or specialization in musicking. To this end we will build on perspectives from improvisation (Lewis), machine creativity (Chung) and artistic collaboration (Laermans; Sanne; Webb) to theorize joint creation.

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Music-colour synaesthesia: Sensorimotor features and synaesthetic experience

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Disciplinary background A. Synaesthesia: Music-colour synaesthesia is included under the umbrella term "coloured hearing" (Ward et al., 2006). Although the phenomenon is typically considered to be separate from general cognition, the shared mental processes of synaesthetes and non-synaesthetes (Simner, 2012) suggest that there may be certain similarities and differences that are a matter of degree. It is argued here that music-colour synaesthesia may share a similar grounding in action to general music cognition (Curwen, 2020).

Disciplinary background B. Embodied Cognition: General music cognition research has embraced embodied accounts highlighting the importance of an acting body and its engagement in the context of musical emotion, communication, participation and musical creativity (Schiavio et al., 2017, van der Schyff et al., 2018). In contrast to approaches presenting music cognition as a series of internal (i.e., computational, neural) processes and representations, these approaches propose the direct, circular interaction between the agent's body and its social, cultural, and physical environment (Reybrouck, 2014).

Abstract

The main aim and objective of this study is to highlight commonalities between mechanisms underlying music-colour synaesthesia and general music cognition, and to demonstrate some forms of music-colour synaesthesia are grounded in action.

Two groups (synaesthetes/non-synaesthetes) reported their experience whilst listening to 3 sets of 4 musical excerpts presented in random order:

Set 1: Excerpts played on the participant's principal instrument

Set 2: As in Set 1 but on an instrument not played by the participant before

Set 3: As in Set 1 but played on an electronic instrument, and with no expression

Participants selected and rated the applicability and intensity of terms that best described their emotional, sensorimotor/multimodal, and synaesthetic experience, and strength of their motivation to move and vocalise to the music.

It was expected that the intensity of listeners' synaesthetic experience would be influenced by a change of instrument (i.e., a change from their own instrument, to one with which they have no expertise), and there would not be a significant difference between synaesthetes and non-synaesthetes when rating emotional and sensorimotor factors across different listening conditions.

The data were subject to four types of analysis. First, a repeated measures ANOVA tested differences in emotional and sensorimotor ratings across different listening conditions between synaesthetes and controls. Second, a principal component analysis explored clustering of sensorimotor and emotional dimensions. Third, independent t-tests explored any differences between the two groups in the interrelation. Fourth, a Pearson's correlation analysis tested the relationship between sensorimotor and emotional responses, and for any difference between controls and synaesthetes.

The most influential effect on the intensity of listeners' multimodal, emotional or synaesthetic responses was whether or not music was performed by a human, more so than familiarity with a

particular instrument. Synaesthetes and non-synaesthetes were shown to share a relationship between the intensity of emotional and multimodal responses, yet it was multimodal/sensorimotor intensity that was shown to be fundamentally associated with the intensity of the synaesthetic response. Overall, the results highlighted commonalities between the mechanisms underlying music-colour synaesthesia and general music cognition, and demonstrated that some forms of music-colour synaesthesia are grounded in action.

Interdisciplinary implications. In recent research, it has become more apparent that it is important to take into consideration that synaesthesia is not just one single condition to be explained under a 'one for all' mechanism (Simner, 2012). This research further encourages us to place synaesthesia in response to music on a continuum from "synaesthesia" to "typical music cognition" not just in perceptual terms as previously argued (Eitan, 2007; Marks, 1987) but also in sense of music cognition as an embodied phenomenon.

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Media, virtuality, and participation in musical creativity of the Young Cracow Composers

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Disciplinary background A. The starting point for the subject of Media, Virtuality, and Participation in Musical Creativity of the Young Cracow Composers will be the widely understood study of the art of composition and musical reflection: musicology / composition / music theory including many humanist-oriented interdisciplinary organic contexts.

Disciplinary background B. The selected compositions will be presented in the broad context of contemporary generative art and performative strategies such as visualisation, theatricalization and

semantisation, or performative categories such as vocality (tonality), corporeality and spatiality. The paper will therefore also fit into the realm of performance studies.

Abstract

The main aim of the paper will be to present selected works of young composers (in collaboration with performers, dancers or choreographers), among whom the neo-avant-garde aesthetics, post-internet art, new conceptualism or the idea of conscious music or relational music are currently in vogue, and most often, again, multimedia performance (after its peak in the 1960s and 1970s) as a frequent and laden medium of expression.

In the introduction to Carnivalization. Ludic Trends in Contemporary culture. An Introduction, the editors of the volume, Grad and Memzer, note that "applying not only the concept, but also the whole theory of carnivalization to contemporary culture may bring associations and suggestions that are too unequivocal, placing contemporary culture in the ludic-consumer trend, which is geared towards providing hedonistic pleasure drawn from every possible area of modern man's life. There is no doubt, however, that very often post-modern culture is referred to in precisely these categories. The carnival-like perception of the world allows us to see the 'logic of the opposite' in contemporary culture". [Grad, Mamzer 2004: 8] Something is indeed up. Looking at the functioning of artists and their works in the contemporary, multimedia reality, one can notice certain phenomena of an "upside-down world": what was supposed to sound good is now better looked at, what was performed in concert halls is transferred to pubs, and the one who usually appeared in a tailcoat now sports a hoodie or a flannel shirt. Is there a method in this madness? Well, there are at least three interesting trends that define musical art here and now from the point of view of performance studies:

1. Recontextualization – showing a new type of spectacle and artist. In the age of the Internet and social media, the appearance of artists that also represent the so-called high culture has become more important than ever before, often manifesting their different interests and skills in areas other than classical music. This frequently blurs the boundaries between high and popular culture and creates the effect of a musician-celebrity in the sense of the global concept of a "star".

2. Reinterpretation – based on a new type of message and its consciousness. At a time when originality and the fashion for borrowing were being banished, it became a priority among young artists to find their own method of referring not only to tradition but also to the surrounding, complex, multi-level reality.

3. Revitalisation – exploiting a new type of creation and the means used. Among contemporary composers, or rather post-conceptual artists (as they often call themselves), new ways of creating new intermedia forms are emerging.

The article will present examples of works by Cracovian artists who are part of the above-mentioned performative trends.

Interdisciplinary implications. A limited selection of examples of musical works presented in the article will illustrate the so-called performance paradigm, "extending", as Matthew Shlomowitz wrote, "the compositional, aesthetic and performance practice pursuits of work made for a setting in which audiences debate whether it is better to listen with eyes opened or closed". As a kind of "polyphonic labyrinth" they fit into a specific aesthetic of performativity. Therefore, musicological tools for purely musical analysis should include methods from the field of performance, as well as literature or the visual arts. Interdisciplinary work requires interdisciplinary research methods, which I hope will be reflected in the proposed text.

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Call and response: Social affordances in virtual Egyptian music and dance performance

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Disciplinary background A. Ecological psychology and distributed creativity. The theoretical framework of the research drew on Gibson's (1979) ecological psychology and concept of affordances, considering the role of technology and music as social affordances. The distributed and inherently social nature of music and dance (Linson & Clarke, 2021; van der Schyff, Shiavio, Walton, Verlado, & Chemero, 2018) and online creative participation (Literat & Glăveanu, 2018) was considered, drawing on ecological perspectives from the fields of human-computer interaction (Norman, 2013), music (DeNora, 2009; Duby, 2019; Krueger, 2014; Magnusson, 2010; Martinez & Villanueva, 2018) and creativity studies (Glăveanu, 2012).

Disciplinary background B. Participatory Action Research. The work took the form of a participatory action research (PAR) project, exploring the creation of a virtual music and dance performance in ashra baladi, an Egyptian improvisational form of dance and music by six experienced arts practitioners. Participatory action research centres local knowledge and needs, aiming to involve members of the community in the research project and create social change in the process (Brydon-Miller, 1997; Lykes, 2013; Smith, Rosenzweig, & Schmidt, 2010). During COVID-19 lockdown, arts practitioners were

required to adjust rapidly to changing circumstances to maintain their livelihood, and this research investigated this process. As community-based arts practitioners, the researchers further investigated how virtual improvisation might be applied for social connection in larger culturally diverse settings.

Abstract

The research aimed to explore:

- The affordances and constraints encountered by practitioners creating an asynchronous improvised virtual music and dance performance
- The social processes involved in collaborating remotely
- The role of digital platforms and music and dance engagement in facilitating intercultural understanding

During COVID-19 lockdown participatory music engagement during COVID-19 lockdown was adapted using digital means. A popular approach was multi-tracking, asynchronous, virtual performance where individual contributions are recorded in isolation and made synchronous in post-production. Asynchronous approaches are often centrally coordinated through the distribution of guide videos, music scores and click tracks, however this performance was developed collaboratively with practitioners building and layering on previous contributions. As well as the constraints of ashra baladi which has an underlying structure and conventions based on Arabic maqams (melodic modes) and rhythms, the collaborative process was constrained by the remote and asynchronous nature of the task. Although there is a strong body of literature investigating music improvisation, much of it considers contingencies and immediate feedback between participants. The main contribution of this research is its consideration of how coordination and collaboration emerged in the absence of direct contact and shared temporality, requiring anticipation and imagination and complete awareness to create a cohesive end product. Finally, there were implications for digitally mediated embodied practice in facilitating intercultural understanding, with a range of online mediums providing opportunity for mindful and deep engagement with the sociocultural background of the music and dance form.

Interdisciplinary implications. The research underscores the importance of lived experience and social interaction as an object of study in ecological perspectives. The work also contributes to emerging research methods adapting phenomenological approaches to include digital trails as data.

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Investigating participation in the formation of indeterminate music: example of Cage's *Solo for Piano* (1958)

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Disciplinary background A. Background in sociology

Weber proposed the theory of rationality through his observation of Protestantism, and subsequently suggested that rationality is derived from an individual expression of preferences, value standards, behaviours and purposes (Habermas, 1984). He then applied his own notion of rationality to Western music to dissect music formation at notational, structural, instrumental and societal levels (Weber, 1958).

Disciplinary background B. Background in musicology

Indeterminate music demonstrates its indeterminacy in the creativeness of the composer, as well as the openness of the musical work and realisations of the performer and listener respectively. Their tripartite participation can be termed as incorporating poetic, neutral and aesthetic levels (Nattiez, 1990; Clarke, 2016). The musicological studies of graphic score and the indeterminate music of Cage mostly concern realisation and interpretation, while the exploration of rationality has been limited to the translation and explanation as per The Rational and Social Foundations of Music (1921).

Abstract

(1) To extend the theory of rationality further by applying it to indeterminate music to observe how an individual's participation affects the formation of music on notating, performing and appreciating levels, citing *Solo for Piano* by Cage as the primary example.

(2) To investigate the transformation of rationality in the 18th and 20th centuries by comparing different participatory forms of individuals in Prelude in C Major BWV. 846 by J. S. Bach and Solo for Piano, Cage, then to suggest the revision accordingly.

In the 20th century, avant-garde musical form was composed and appreciated differently, through the participation of the composer, performers and listeners alike. As Cage permits performers to complete their freedom of choices (Iddon, 2013), the musical work is tightly interwoven with their participation, thus never the same. How should one analyse music with regard to the new formation? The theory of rationality is one constructed by observations of individual actions: it consists of purposive, value and formal rationality, which means that this theory can reflect purposes, intentions and the sense of value of people, to examine how an individual ultimately participates in the musical work. The exploration of new musical formation is bilateral; indeed, when delving into the individual participation a revision of rationality is revealed. Weber proposed rationality in the middle of the 20th century, but he did not have the chance to apply this theory to indeterminate music and graphic scores; the theory did not develop well afterwards. As such, this paper intends to delve into the tripartite participation discovering new musical formation on notating, performing and appreciating levels, and propose discourse surrounding a revision of rationality within indeterminate music.

Interdisciplinary implications. This paper seeks to demonstrate how rationality in the tripartite participation of indeterminate music will bring out not only a new viewpoint of musical analysis through the sociological standpoint, but also refine the theory of rationality from the musicological one. In light of these developments, more research possibilities into indeterminate music are provided; in the meantime, an intertwined relationship within the two disciplines will be revealed.

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Performance as theatre: How expert pianists participate in concert stage direction

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Disciplinary background A. Disciplinary background A. Statement of background in Music psychology

Audiences have a non-conscious dependence on sight to inform their interpretations of music performance (Friedrich & Reinhard, 2012). Non-verbal cues influence performance appraisal (Tsay, 2013) and audiences are swayed by their first impressions (Platz & Kopiez, 2013). Audiences favour performers who are attractive, make eye contact (Wapnick, Mazza, & Darrow, 2000), and are dressed appropriately (Urbaniak & Mitchell, 2021).

Disciplinary background B. Disciplinary background B. Statement of background in Music performance

In the 1840s, Liszt revolutionised the traditional concert stage with his performance magnetism. Liszt showed an uncanny insight into the audiovisual fusion for optimal performance (Robert Schumann, in Gooley, 2004, p. 47). Expert performers appear cognisant of the complex task of creating a musical spectacle. Consummate performers dress to impress (Griffiths, 2011), project physical performativity (Davidson, 2014), and guide their audiences through gesture (Doğantan-Dack, 2011).

Abstract

This study aims to discover how professional pianists utilise sight and sound for the concert stage.

Nine internationally-renowned pianists participated in semi-structured interviews about planning for the concert stage. They described their approach to performance, their preparation and their interpretation of the audience's experience. Responses were transcribed and coded thematically.

Expert performers exploited visual cues in their performances to construct a gestalt audiovisual experience for their audiences. They were active participants in choreographing nonverbal communication, stage demeanour and attire. Commanding the spotlight was essential to create the concert spectacle. For these performers, Liszt was the epitome of the performer-soloist who employed visual cues to enhance his performance. Liszt's performance manner provided a rubric for modern-day performance, and performers credited Liszt to their approach to stage entrance, demeanour and flair. Performers distilled elements of Lisztian showmanship and integrated them into a theatrical production to amplify their own performances.

It appears these experts had a tacit appreciation of nonverbal cues to optimise performance, and harnessed the power of sight intuitively. They understood audiences' visual preferences and biases, and acknowledged performativity was integral to their performance to augment the audience experience.

Interdisciplinary implications. For these expert performers, successful music performance was an audiovisual spectacle. They maximised sight to complement and enhance their musical prowess. Visualising the concert from the audience's perspective enabled them to think critically about the impact of sight on sound. Performers were adept at directing their audiences and stage-managed their concert demeanour to optimise the reception of their performance. They were able to articulate the importance of sight in performance and crafted their performance accordingly. Future research

studies will investigate how expert performers understand and combine nonverbal cues into performativity, and transform the stage.

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Civilian wind bands as agents of non-formal and informal education

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Disciplinary background A. Second-generation non-formal education has garnered strong interest in the compelling education sciences field and has become an essential factor in achieving the Sustainable Development Goals (Rogers, 2019). Collaborative educational initiatives, such as community learning centres, are increasingly providing new educational possibilities to promote cultural understanding among adolescents, youth and adults (International Commission on the Futures of Education, 2021).

Disciplinary background B. Furthermore, the sociocultural context of ethnomusicological research embraces all types of music, namely the musical practices outside formal educational institutions. Community music, which rests on a set of activities that involve active music-making and people's cultural participation (Higgins, 2012), provides the opportunity for participants to "construct personal

and communal expressions of social, artistic, political and cultural concerns." (ISME, 2021, www.isme.org).

Abstract

Our doctoral research project aims to examine and understand the educational values generated in the practices of civilian wind bands, both from individual and community perspectives.

Civil wind bands are strongly related to changes in the Western social context, which have affected European social and cultural life since the nineteenth century (Dubois et al., 2013). Their practices fit the foundational principles of Community Music as proposed by L. Higgins and L. Willingham (2017). Their activities result from challenging education processes involving communication, interaction, or intergenerational relationships. They also address the most recent educational findings from authentic and situated learning or process-oriented education (Koopman, 2016). Moreover, a compelling body of research on active music-making is increasingly linking music education, well-being, social cohesion, personal development, and empowerment, especially in groups of independent subjects (young and older people). Our study will employ a sequential explanatory mixed-method design (Creswell & Creswell, 2018) within a multiple case study strategy (Stake, 2006). In the first step, as part of a comprehensive approach, the quantitative data will be gathered from members of Portuguese civil wind bands through a survey questionnaire. The quantitative data will characterise the socio-demographic, perceived educational values, and cultural profiles of musicians and wind bands. Applying formerly defined pertinence criteria, like socio-institutional categorisation, membership dimension, geographic location (mainland or island), population density, or foundation date, the wind bands eligible to participate will be selected in the following research step. In a supplemental intensive view borrowed from the ethnographic inspiration, individual comprehensive interviews, field notes and participant observation will provide relevant qualitative data for content analysis. Following this, triangulation of data and between-method triangulation (Flick et al., 2004) will provide a more thorough description, explanation and insight into our subject research.

Interdisciplinary implications. The research project is intended to contribute to the body of knowledge in education sciences, by targeting the non-formal learning processes involved in wind band activities. It will provide updated insights into adult education, sociocultural animation or local development areas, opening new research perspectives.

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"Where are the bizarre chords in the middle?" A search for the sound of imaginary music

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Disciplinary background A. Musicology has always relied on the notion of an epistemological gap between music and language. Even though New Musicology has attempted to rethink and underline the importance of different types of discourse about music (Kramer 2003), the topic of "music in literature" remains, with some exceptions, somewhat unexplored by musicologists.

Disciplinary background B. In turn, Literature has fostered many different reflections about the importance of music in literature. These studies are intrinsically connected to the development of the field of Word and Music Studies, which has motivated the emergence of terminology such as ‘verbal music’ (Scher 1970), and the 'musical novel' (Petermann 2014).

Abstract

This paper seeks to contribute to the study of 'music in literature' and to analyse fictional 'verbal music' (Scher 1970) from a musicological perspective, by approaching the reader as co-creator and listener, thus aiming to understand how the verbal description of imaginary music in a novel can interact and alter the way we perceive, interpret and think about music.

As a literary description of a piece of music that does not exist or cannot be identified, imaginary music presents itself as a kind of empty space, or a blank canvas, that fosters communication, participation and, consequently, the proliferation of meaning. I will focus on the novel Kafka on the Shore (2002) by Haruki Murakami and analyse the case of imaginary music included in the text, as well as different attempts to transpose this inaudible verbal description to the musical medium. On Youtube, there are seven different musical interpretations of the song "Kafka on the shore". Although they are all based on the lyrics presented in Murakami's novel, each song choses a particular language, instrumentation, melodic gestures and tempo, which, in turn, motivate different reactions from the users that have read Murakami's work. These intermedial transpositions and the debates that they stimulate allow us to better understand the importance of language and metaphor in the creation of musical meaning and to value the reader's auditory imagination. As many comments to these musical adaptations suggest, imaginary music forces us to search for sound and allows us to participate in a process of

"worldbuilding" that is simultaneously personal and collective. Also, the different materialisations of "Kafka on the Shore" act upon the readers and change the way they interpret Murakami's narrative, its characters and the overall reading experience.

Interdisciplinary implications. By proposing that imaginary music is a form of verbal music worthy of distinction and reflection and by analysing a case of musico-literary intermediality that re-interprets the reader as a composer or a listener with specific musical experiences and expectations, I hope to suggest that words and literature do not simply silence music and fixate a particular interpretation of its meanings (Odello 2013), but, on the contrary, prompt different "hearings" and help us communicate and understand the values we associate with music as an idea and as a practice. Overall, I aim to demonstrate that imaginary music creates spaces for discussion and signification that allow us to access and dialogue with participatory processes and to understand our cognitive relationship with musical sound. Consequently, this specific phenomenon can be thought of as a methodological tool for Musicology and, as such, can test the limits of music's intersemiotic relations.

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Singing in the pandemic: A small-scale study on musical experiences of university choristers in Hong Kong and the United Kingdom during the COVID-19 pandemic

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Disciplinary background A. In the discipline of singing physiology, mask-wearing, a commonly adapted practice in choirs during the COVID-19 pandemic, not only adds burden to breathing but also negatively affects resonance and articulation.

Disciplinary background B. In the field of musical psychology, singing as a choral group enhances both physical and emotional sense of belonging of singers.

Abstract

The aim of the study is to identify any possible impacts of mask-wearing on the experience of singing in a choir.

From a scientific perspective, it is known that mask-wearing negatively impacts choristers by affecting their breathing, resonance and articulation . However, there are very limited studies asking if choristers really think so. It is also uncertain whether, if choristers feel the difficulties brought by mask-wearing, these difficulties will affect other aspects of their musical experience. To investigate this issue, a questionnaire was distributed to choristers singing in University choirs in both Hong Kong and the United Kingdom. They are invited to comment on their musical experience of singing with and without masks by giving number scores of a scale of 5. The collected data are processed in order to identify any statistical significance.

It is found that the concerned choristers' musical experiences was not significantly affected by mask-wearing. Despite the small sample size and the imbalance ratios regarding sex and nationality, it seems that sex and nationality do not significantly contribute to choristers' opinion on singing with masks. However, statistics hint that the the doubt of mask-wearing's anti-pandemic effect may be related to the physical challenges brought by mask-wearing.

Despite the findings mentioned above, it is realized that the sample size of the present study is small, and the gender and nationality of the participants are imbalanced. This implies that the statistical findings may be obtained by chance or be influenced by extreme data. Nevertheless, the present study should serve as an insight for future studies to explore more about the phenomenon of singing with masks.

Interdisciplinary implications. This study should have demonstrated how public health issues, which affect people's daily lives, can be correlated to music making which can be a routine for some people. Although the study is small-scale and quantitative, it effectively identifies various factors that can possibly impact choristers' musical experience under the current difficult situation of COVID-19 pandemic. Future studies can evaluate this attempt of a small-scale quantitative study so that they can better design the methodology to better investigate the correlation between public health factors and musical experience.

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Fab maps and the cartography of the invisible: Fragments on feedback ecology and participatory field recording

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Disciplinary background A. Basis in critical theoretic approaches within the broader discipline of philosophy.

Disciplinary background B. The work is shaped through experimental music and sound art practice.

Abstract

Explicate the influence of cybernetics in experimental music/sound art that deals with ecology and nature, relating this to art in radical politics

The presentation evaluates modes of field recording practice in experimental music/sound art that are self-consciously participatory, rather than strictly observational. I will consider such modes that emphasize ecological relationality as a means of avoiding ethical dilemmas of documentary representation: namely, observation that tends to isolate or fix its objects of study as material for exploitation thus perpetuating colonialist anthropology. Considering that the human observer is also

nature, I will look towards models of collaboration, drawing on Adorno's concept of second nature. Such collaboration will provide criteria for an immanent critique of cybernetics thru assessment of system/observer interactions in ecological relationality. This engagement with cybernetics will contextualize experimental music practices that carry residues of mid-20th century optimism in technological innovation into our early twenty-first-century era of algorithmic entanglement and environmental crisis. Autoethnographic feedback will provide a means of charting the echoes of the observer's values that are projected onto the landscape thru their engagement with the environment via technological media. The field recordist emerges as a conduit or circuit conductor for the invisible forces that shape a landscape. Thus, disjunction between seen and heard, presence and absence, become eco-political points of rupture between past and future under the ban on images of utopia (Bilderverbot). This mediation of historical memory will be carried forward thru Deleuze & Guattari's account of fabulation where the artist is a "becomer" and "goes beyond the perceptual states…of the lived", in order to channel the collective optimism and utopian energies invested in the cybernetic era, now scattered in the landscape like shards of a monumental shipwreck.

Interdisciplinary implications. Philosophical aesthetics offers an entry point to the history of science and guide to addressing environmental crisis.

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Piano teachers' use of music memorisation in one-to-one piano lessons: A preliminary study

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Disciplinary background A. Background in music performance and education.

Despite the standard expectation of audiences and many competitions/auditions committees that performers should be able to perform extensive musical works from memory, there is a dearth of systematic research on music memorisation pedagogy, and a lack of consensus amongst music teachers on the most effective methods of teaching music memorisation.

Disciplinary background B. Background in music psychology.

Music psychologists have examined such topics as performance cues, mental practice, and expert memory (Chaffin et. al, 2009, 2016; Bernardi et. al, 2013; Mishra, 2017). Such research has primarily focused on strategies used by expert performers and university students, with limited insights on how memorisation is taught to beginner/intermediate students.

Abstract

This study aims to investigate the extent to which music memorisation is taught to children and adolescents in one-to-one piano lessons and to explore the diversity of strategies used for teaching memorisation.

Participants were provided with an online questionnaire comprising 44 items in total, including demographic questions, rating scales probing different types of memorisation strategies, and open-ended questions. The primary focus of the present study is on 3 of the open-ended questions, specifically: 1) Give a brief description of music memorisation, 2) How would you teach memorisation in Kabalevsky's Galop? (participants were provided with the score) 3) How do you memorise as a performer? Participants were recruited via online advertisements and international local schools in the UAE. In total 70 participants completed the survey, however only the data of 37 participants who completed 75% or more of the survey were used in the current study. These 37 participants had a mean age of 43.65 years (range = 25-81, SD = 12.74), with the sample comprising 32 females and 5 males.

Results indicate that music memorisation is perceived by the participants as a skill that develops through practice rather than a natural talent. Reported strategies for teaching memorisation fell into four categories: aural, visual, kinaesthetic, and analytical, which aligns with previous theoretical conceptualisations of musical memorisation. Recurring mentions of muscle memory/repetition practice and music theory knowledge suggest that kinaesthetic and analytical memorisation methods are dominant when teaching music memorisation to children learning the piano. In particular, thematic analysis across all the three qualitative questions shows that kinaesthetic and analytical memorisation methods were dominant when compared to aural and visual methods which received a smaller number of responses.

Interdisciplinary implications. This research shows how a study into the teaching of music memorisation will impact not only the ways instrumental teachers in general teach music memorisation, but also assist younger students to understand and master music memorisation through an informed systematic method. This project focuses exclusively on how piano teachers teach

students under the age of 18 and combines insights from music pedagogy and psychology in a novel way to develop practical insights of use to teachers and students. The central theoretical contribution of this study is the extended examination of piano memorisation and its implications on piano pedagogy: the first of its kind.

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Control and failure: A framework for analysis of sound oriented intermedia art

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Disciplinary background A. The research has a basis in music theory and musicology.

Disciplinary background B. The argument is developed through intermedia art practice and criticism.

Abstract

In this study, contemporary artistic strategies and intellectual attitudes to imperfection are exemplified with several significant projects, including activity of known sound artists, concerts of Krakow Studio of Electroacoustic Music and GrupLab collective, and projects by students of Intermedia department the Krakow Academy of Fine Arts, realised under the author's guidance.

European tradition draws plenty of constraints on musical creation. They seem to share a common core, which is an idea of dexterity, mastery, or perfection. In parallel, successive generations of young artists repeat the gesture of contesting such conventions. Composers of music inherit from the radical revolution which took place a century ago, as a result of anti-art movement. Atonal, ametric, and noise music intentionally lacked clearly audible regularities, and so it was perceived imperfect, or as a fallacy, to the layman listener.

On the other hand imperfectness, or even so called “aesthetics of failure”, enables participation in music of people who, due to insufficient skills, are normally outside the stage. A musical happening brings different goals than a traditional European concert oriented towards impeccable performance or recording of a musical work. Also the work itself is supposed to be a perfect, complex and coherent composition of sounds. Music as a social medium delivers a powerful platform of communication, however, in the case of Western artistic music, it is strictly regulated, severely limiting access to music

creation to a narrow group of professionals. Focusing on communication instead of the perfection of sound material opens up new possibilities for sound oriented artistic projects, especially within the realm of intermedia art.

In recent years, significant changes in general understanding of music may be observed. In today's, conceptually oriented sound projects, often supported by advanced digital technology, the imperfection often establishes a goal. It is not the sound matter itself to be controlled, but to create an artistically interesting interaction through the medium of sound. This leads to many questions (particularly within the field of analysis), and paradoxes. Questions become even more urgent, since such an aesthetic shift already influences the music being created in European conservatoires. In quest of a theoretical framework adequate to the such recent tendencies, several criteria may seem promising. The control-failure opposition presents a high potential to polarise analysed phenomena.

Interdisciplinary implications. This work extends the musicological methodology to cover new areas of sound oriented artistic projects, related especially to intermedia art. This delivers terminology capable of describing new phenomena in art of sound, and proposes new classification of the most common artistic strategies.

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Collectively classical: Social connection at a classical concert

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Disciplinary background A. This research is primarily situated in the discipline of music cognition. This research project aims to understand the influence of musical piece and listening context on the audience's perception of a classical music concert.

Disciplinary background B. This research is also situated in the disciplines of social psychology and emotion science. We aim to understand the outcomes of social connectedness and the emotion of feeling moved.

Abstract

We aimed to examine the difference between live and livestreamed concerts, the influence of musical piece, and participant characteristics such as empathy and fan-status on audience social connectedness and feeling moved.

Concerts are fundamentally social experiences in which an audience and musicians gather to witness and create an aesthetic experience. Concerts and the music featured there may facilitate connectedness and the sociorelational emotion kama muta (frequently labelled "feeling moved") through a variety of mechanisms. Recent research suggests that in virtual concerts, both concert characteristics (e.g. liveness, technological platform) and individual characteristics (e.g. empathy, loneliness, concentration) influence feelings and behaviours associated with social connectedness (Swarbrick et al., 2021; Onderdijk, Swarbrick et al., 2021). Social bonding during collective music listening has previously been demonstrated in the context of dance (Tarr et al., 2016). Questions remain on how concert and personal characteristics influence social connectedness at a live concert and how the effects of live and virtual concerts differ.

MusicLab Copenhagen was a concert experiment in which the Danish String Quartet performed to a live (n = 91) and a livestreaming audience (n = 45). Participants responded to questions on their personal characteristics and their social and emotional concert experiences using a questionnaire in response to three distinct pieces of music. Specifically, participants reported feelings of social connectedness that they felt towards the performers and the other audience members, and they responded to the kama muta scale.

Although the live audience members felt more socially connected to other audience members than the virtual audience members, both live and virtual audience members felt similarly connected to the performers. There was also a main effect of the piece of music for both social connectedness and feeling moved such that these outcome measures were highest for the folk, then Beethoven, and then Schnittke. When examining awe, the main effect of piece was also present however with awe presenting an opposite trend, with Schnittke producing the highest levels of awe followed by Beethoven and then folk. This research has helped us understand the experience of live and virtual classical concert audiences. Furthermore, this research contributes to a burgeoning field comparing the effects of live and virtual experiences and the implications of their differences on our social well-being.

Interdisciplinary implications. The MusicLab Copenhagen project was an interdisciplinary collaboration between psychologists, technologists, musicians, and philosophers. This project offered meaningful perspectives on the challenges and advantages of conducting research on such an interdisciplinary team. The MusicLab Copenhagen model could be employed by future research teams to get the most out of a concert experiment. In this particular study, we combine disciplinary expertise in social psychology and music cognition to better understand participants' social experience of concerts.

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Music theatre preservation: Intersections between musicology and archival science

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Disciplinary background A. Musicology focused on the documentation of music theatre works to facilitate their study and preservation. The traditional methods of musicology are not enough for the preservation of music theatre, as such works are interdisciplinary in themselves involving different artistic expressions such as music, theatre and dance, also including diverse media such as electronic components.

Disciplinary background B. Archival science centered on the description of events involving performance using archival standards. Archiving performative practices as music theatre remains problematic for archives, to accomplish this task, archivists must know these works and understand their collaborations, idiosyncratic language and notation, as well as their performative features.

Abstract

The presevation of music theatre works in archival contexts requires: to examine the in/external relationships and the mutual interactions incorporated into the works in agreement with the context of their creation/production; to provide the means and tools for facilitating the recreation of music theatre works in more historically informed approaches.; to focus on relevant theoretical writings analysing the social contexts in which music theatre works were created and study the documentation, gathering, mapping, documenting and safeguarding the collaborative practices, describing interactions, interventions and interpretations of creators, performers and other contributors involved in performances; to broaden discussions about issues relating to the preservation of creations in the field of the performing arts in (digital) archives, in which artists build their own archives.

Music theatre works composed from the 1960s onwards have not yet been subject to careful attention even though their preservation is fundamental to the survival of performative features. Should this performative genre not be appropriately acknowledged, outlined, preserved, and disseminated through digital platforms, there is the risk of it disappearing, not reaching audiences. Nonetheless, archivists unaccustomed to this types of idiosyncratic language and notation, collaborative practices, new forms of being on stage (challenging musicians, dancers and actors) or new ways of communicating with the audience (changing their perception of participation), encounter difficulties in processing these works and producing archival records, therefore it is fundamental to fill this gap. Music theatre works bring together different artistic fields (music, theatre, dance) and are characterized by recourse to a wide variety of sources (music, settings, movement, text, electroacoustics, image, props, costumes, light), all requiring articulation. Moreover, these explore

performance opportunities that imply sharing ideas amongst all collaborators (behind the act of creation), documenting their thoughts (decisions made during the collaborative process), besides other issues involved in producing performances. Such works result from new innovations across all creative artistic expressions engaged in wider forms of collaboration, dialogic approaches and so forth, with a greater commitment to digital technologies and digital practices within live performance settings. In most European countries, this performative genre was disregarded, possibly due to its unconventional character and the lack of knowledge of its aesthetic language, which often places it outside the traditions, institutions and discourses already established by opera or musical theatre. However, a renewed interest in sound, theatrical and performance elements, coupled with a concern with the preservation of valuable cultural heritage, has led to a resurgence of interest in the performative genre and its history, especially at a time of cultural, economic, and social instability, still even more accentuated by the current pandemic situation. Dealing with collaborative practices challenges musicologists thus needing to undertake musicological archaeology of the work while accessing the different types of documents, including technological tools such as graphic representations (scores, sonograms, spectrograms, formal schemes) or symbolic representations (such as computerized analytical descriptions of the work). But how do we systematically transpose this set of components into the archive? Answering this question inevitably incorporates the development of innovative methods and tools able to assist and automate the work of archivists and musicologists. To support this proposal, I will present as a case study the collection of composer Constança Capdeville, the greatest representative of the music theatre in Portugal.

Interdisciplinary implications. The preservation of music theatre works and other correlated collaborative practices generates documentation then available for long-term access, requiring an association between the practices of musicology and the approaches of archival science. Some possible approaches are: researching theoretically music theatre specificities and analysing music theatre documentation in the light of musicological and archival science methodologies to developing a new theoretical framework; investigating practice: documenting productions as part of the notion of the post-custodial archive. This would expand the traditional musicology restoration methods, thus contributing to the history of European culture while enabling a greater circulation of works and cultural goods. The intersection between musicology and archival science seeks to contribute to the access and understanding of these works, assisting archivists, academics, performers, producers, or users interested in such performative practices. It also reasons to provide an intergenerational dialogue (grandparents, parents and grandchildren) perpetuating the memory and legacy of countless artists involved with the experimental music theatre of the past and present, a fundamental contribution for the performing arts in Portugal and Europe until today not yet achieved.

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Music in the Community as an Undergraduate module: Discussion of different student placements from the student and instructor's point of view

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Disciplinary background A. Musicology, with consideration to applied music research and teaching practices in UK and Greek HE contexts.

Disciplinary background B. Considerations are brought to bear from both music psychotherapy approaches, and in the technological (AI) possibilities for applied community music practice.

Abstract

This article aims to approach the undergraduate module of "Music in the Community" within a Greek university context and critically discuss the outcomes derived from it from the student and instructor's point of view. It also attempts to approach it while reflecting on both authors' experiences working with community music in the UK. Finally, it aims to propose future focus areas for this module, taught within the Greek framework.

Both co-writers will describe and systematically analyse their experience of being involved in the academic module of Community Music in Greece from the instructor and student's points of view, respectively. Through their reflexive ethnographies deriving from what has arisen from fieldwork, they will attempt to determine the shift of relationship dynamics that have happened through music participation from a qualitative research prism: between the community working with and between themselves. Additionally, both authors share a background working in the UK as community musicians. Therefore, they will examine how a British Community Music approach challenges the Greek context of studying Musicology, especially within a mostly theoretical Integrated Master's degree at the University of Athens. Finally, the data used for this research will be extracted from writers' reflections and interviews with service users, examined with narrative analysis and summarised to conclude the findings.

Interdisciplinary implications. Authors agree that a curriculum transformation is needed to shift the university's social responsibility (Harrop-Allin 2017) as more institutions raise awareness around the issue. Moreover, the authors reflect on the challenges of researching while coming from contrasting academic positions. In conclusion, the article approaches the future work necessary to be done concerning the different levels of reflection (Broeske-Danielsen 2013) upon the participants' and instructors' musical experiences of this module.

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Participatory music making with people living with dementia

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Disciplinary background A. Background in music psychology: The potential therapeutic effects of music are wide ranging (MacDonald et al., 2012). Music has been shown to stimulate the brain (Trimble & Hesdorffer, 2017), promote social connections, and provide a channel for communicating emotions and intentions, and expressing individual identity (Hargreaves et al., 2017).

Disciplinary background B. Background in healthcare: People living with dementia can experience behavioural and psychological symptoms, often resulting in a lower quality of life for themselves and their caregivers (Cerejeira et al., 2012). In recent years there has been increased interest in music-based interventions that could alleviate some of these symptoms and improve quality of life.

Abstract

The main aim of my talk is to give an introduction to my research, which explores the experiences and perspectives of experienced music therapists and community musicians who engage in participatory music practices with people living with dementia. Through my research I aim to bring about a deeper understanding of the benefits of active participation in music for people living with dementia, and also shed light on the challenges and rewards it can bring for the community musicians and music therapists who work with them.

Music has been shown to have a range of benefits for people living with dementia with evidence indicating that music can reduce symptoms such as agitation (Elliott & Gardner, 2016), depression and anxiety. Reported benefits also include improving quality of life and cognitive skills as well as promoting personhood and strengthening social connections. There is also evidence that memories

of musical experiences are well preserved in comparison to other types of memories in people living with dementia (Jacobsen et al., 2015) raising the possibility that music can be used to trigger and reinforce memories in people who may be too severely affected by dementia to respond to other treatments. The use of music in dementia care is well established in the field of music therapy, and over the past ten to fifteen years there has also been an increase in the number of community musicians working with people living with dementia. My intention is to give an overview of the ways in which music therapists and community musicians are connecting with people living with dementia through participatory music practice. I will discuss how this work is reflected in the literature and present some initial findings from my research. This will increase our understanding of how music is being used to improve the wellbeing of people living with dementia, and of the experiences and perspectives of the practitioners who are delivering these interventions.

Interdisciplinary implications. By exploring the work of music therapists and community musicians who work with people with dementia, I will contribute to the field of music psychology by improving our understanding of how different approaches to music making can have an effect on people living with dementia. I will also contribute to the field of healthcare research by highlighting potentially effective non-pharmacological approaches to improving the lives of people living with dementia.

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Song, meaning-making in a dialogue

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Disciplinary background A. Pragmatics. Music might have preceded language as means of communication (Fitch, 2009; Brown, 2000) and its meaning therefore seems to unfold in a dialog. Just like prosody conveys speaker's intentions (Hellbernd & Sammler, 2016), the musical accompaniment gives away author's intentions. By decoding its relevant features (Wilson & Sperber, 2008) the perceiver interprets the intended message.

Disciplinary background B. Cognitive Linguistics. Similar conceptual networks for language and music have been suggested (Schön et al., 2010), and the capacity of the latter to convey concepts has been empirically proven (Painter & Koelsch, 2011). Since the two systems perform remarkably similar interpretive feats (Patel, 2008), linguistics provides useful tools to discover the nature of musical meaning.

Abstract

This paper endeavours to shed light on the mechanisms underlying allocation of meaning and the exact role of the perceiver participating in the sense-making interaction which is song listening.

Language and music are human universals involving perceptually discrete elements organised in hierarchically structured sequences (Jentschke et al., 2005). Given its similarity with language, in past decades music has attracted scholars from cognitive linguistics and neurolinguistics (Patel, 2008; Peretz & Zatorre, 2005). These disciplines provide tools to specify the nature of meaningful mental representations and have offered evidence for overlapping brain areas for the processing of both musical and language meaning (Steinbeis & Koelsch, 2008), as well as shared conceptual networks for language and music (Schön et al., 2010). This study in cognition and perception of songs highlights the communicative nature of music (Slevc, 2012), and approaches song as a twofold dialog between the music and the lyrics, as well as between the author and the listener. The use of ecological material, such as songs, seems necessary to uncover the true nature of brain's processing of meaning in both domains (Fitch, 2015), yet only few studies have been focusing on the cognitive processes underlying sense-making of song. This paper endeavours to show that song perception is analogous to an act of communication in which the perceiver actively participates in meaning creation. At the same time, by setting texts to music, the composer tries to convey richer meaning and imposes one interpretative frameworks by virtue of genre-related cognitive schemas (Shevy, 2008). Furthermore, music bears resemblance with the affective prosodic cues in speech (Juslin & Laukka, 2003), and since during conversation speech prosody provides important clues about the speaker's communicative intentions (Tomasello et al., 2022), listeners might decode the acoustic clues present in the music as containing such intentions. Activation of affect-related cognitive schema imposed by the composer is capable of filling in details, which are not explicitly stated (Kenesei, 2010). Since perception is not something that happens in us, but rather something we do (Tuuri & Eerola. 2012), meaning is actively revealed by the perceiver (Kenesei, 2010), who then becomes a co-author (Boltz, 2001). The world of the mental store of the listener guarantees some leeway for different interpretations. In communication, pragmatic information is quickly integrated (Berkum et al., 2008) and so does the music merge with the text-based message. Musical accompaniment provides additional pragmatic information to the one contained in the lyrics, and has to be interpreted just like the context of a dialog. Thus, song interpretation succeeds thanks to the joint efforts of the author and the listener who both participate in the meaning-making. By linking several theories, such as the Relevance Theory (Wilson & Sperber, 2008) or the Foregrounding Hypothesis (Schotanus, 2020) among others, this paper attempts to highlight the active role of psychological experience of a perceiver in the interpretation. This view of a song as a kind of intentional communication is further supported by the automatic engagement of Theory-of-Mind and social cognition brain networks during music listening (Koelsch, 2011). This paper argues that arts in general and the study of music and its interaction with words in particular can provide an encompassing account of mental representations and the mechanisms by which human allocate meaning to their surroundings and advance our understanding of the nature of meaning in general (Fitch & Gingras, 2011). This paper therefore attempts to add to the knowledge of semantic processing by bridging evidence from cognitive sciences and neurolinguistics on one hand, and pragmatics and musicology on the other hand.

Interdisciplinary implications. Since music just like language represents a uniquely human and universal feature that challenges almost all of the components of human cognition, it constitutes one of the most prominent tools of exploring human cognitive processes. The use of cognitive-linguistic tools in the study of how listeners interpret songs can contribute to our understanding of the nature of mental representations. By applying pragmatic theories to the perception of songs, their communicative nature is revealed. Since a nonrandom correspondence between the cognitive processes experienced by the perceiver and those intended by the creator has been suggested (Fitch et al., 2009), the study of song interpretation enhances our appreciation of the act of artistic creation and thus advances the recently developing field of bio-aesthetics.

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How do you solve a problem like capitalism? The role of music science

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Disciplinary background A. All research is political. This much is clear to feminist, Black, and Indigenous (critical) approaches to science.

Disciplinary background B. Music science does not do enough to acknowledge or work to dismantle the systems of oppression such as racial capitalism, heteropatriarchy and colonialism in which it operates.

Abstract

The aim of this paper is to highlight how systems of oppression (politics) operate in academia, including music science, and to offer alternatives to how we go about doing our research to work against these systems.

In this paper, I draw on a range of feminist, Black and Indigenous literature to offer a non-exhaustive list of individual and systemic actionable changes possible at three points of interactivity with "the system" (here the academy): positions of power inside the system, using the system's existing mechanisms and working outside the system (CLEAR, 2021; Combahee River Collective, 2017; Federici, 2004; Haraway, 2003; Kelley, 2002; Liboiron, 2021; O'Brien, 1993; Robinson, 2000; Smith, 2013; Tuck

& Yang, 2012). Each researcher's identity affects the questions they ask, the methods they choose and their interpretation of the data; therefore, it is important to disclose identity and context (social, economic, political) along with every piece of research in order to situate the knowledge being created (Haraway, 2003). Some additional strategies discussed include community-based research (Hall & Tandon, 2017), citational politics (Ahmed, 2013), strong objectivity (Harding, 1992) and writing reflexively (Richardson, 2000).

Interdisciplinary implications. This paper highlights how music science can learn from critical approaches to science, typically located in social science disciplines, to work in anti-oppressive ways. This is especially important for cross-cultural research (Sauvé et al., 2022), but can be applied to all research.

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Primate duet display via arboreal locomotor predictability: emergent height and variety as selecting for more complex gibbon great calls

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Disciplinary background A. Behavioral ecology is the science of modeling a species' adaptive fit of their behavior to their environment (Fox and Westneat, 2010). Primates exhibit a vast array of behavioral modes and live in a wide variety of habitats across the world, but primarily in forested environs (Fleagle, 1999). Consequently, such a profusion of possible tree species exerting selection pressures on this array of primate positional and communicative modes challenges researchers with myriad habitat considerations. Presumably, such a wide variety of tree shapes, sizes, and statures should exert a corresponding diversifying selection on the behavior of its residents. This exceptional behavioral diversity of primates, incidentally makes them ideal models for testing evolutionary theories that interpenetrate the noesis of human behavior. Unlike our species, gibbons sleep in tall trees—that emerge through the forest canopies of southeast Asia—which also often serve as the primary setting for their exceptional vocal displays Alexander et al., 2018).

Disciplinary background B. Many pair bonded primates participate in coinciding vocal behavior that often manifests in the form of calls with interacting male and female contributions. Socially monogamous gibbons (Geissmann, 1986), tarsiers (Clink, Tasirin and Klink, 2020), and callitrichids (Muller and Anzenberger, 2002) produce mutable vocal duets that feature such acoustic patterning. Gibbons, in particular, routinely exhibit duetting behaviors in all but a few species. The females' "great call" forms the center-piece of such elaborate displays—often featuring a diversity of syllables which typically increase in frequency and accelerate into a rapid series of upward frequency sweeps (Raemaekers, Raemaekers and Haimoff, 1984) blurring repetition into both transposition and trill. Theories on the function of these calls range from resource spacing Mitani, 1985), to pair-bonding and mate attraction (Geissmann, 1986). But few studies to date have looked at various features, especially in combination, and how display structure could relate to ecology.

Abstract

Such structured patterning (e.g. rhythm) of collaborative primate calls may facilitate turn-taking between mated pairs. Such joint vocal coordination could signal corresponding locomotor coordination to neighboring conspecifics. Species that duet with such acoustic features (e.g. rhythmic tempo) likely evolved mental capacities conducive to riskier arboreal locomotion in taller trees. I tested this idea with a species-level dataset of spectrographic vocal duets of gibbons—specifically, assessments of musical features (e.g. repetition, transposition, and syllable) present in each song. For each gibbon species, these features were compared with a dataset of associated indigenous species of "emergent" trees from genus Shorea (of family Dipterocarpaceae) (Ashton, 2003).

Surprisingly, only a few of the features that distinguish primate calls as musical (e.g. rhythm and syllabic diversity) corresponded to these ecological features—primarily only diversity and height of associated emergent tree species. Specifically, emergent height correlated the most consistently with the spectral complexity of the protracted (female) components of the gibbon great call. Contrary to my main prediction, however, arboreal height did not correlate positively with musical rhythm, although it did with percentage of non-overlapping units. And there are marginal indications that it could instead correlate with the diversity of these gibbon-associated emergent tree species.

Interdisciplinary implications. Here, I have questioned the primacy of rhythm as the sole indicator acrobatic primates (here gibbons) use in their acoustic coordination displays (e.g. the great call duet), and a solid case is emerging for the importance of spectral features. Syllabic diversity, for example, was not ruled out as compensating for reduced chemical signaling. As humans, we constitute the only musical ground-primate and we owe our profuse variety of modern musical forms not only to cultural transmission within and between large groups (Street, Eerola and Kendall, 2022), but also, ultimately, to sensory constraints inherited from our ancient olfactory-impoverished primate progenitors. The additional, and somewhat serendipitous finding—that arboreal (emergent) variety and height correlates with musical complexity in the longer female-component of gibbon great calls—provides additional support for an arboreal locomotion conducive cognition signaling related function of primate duets.

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Differentiating between terrifying and anxious music in emotion research

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Disciplinary background A. Evidence from the field of topic theory suggests that “scary” film music is divisible into at least two distinct types described as ombra and tempesta (McClelland, 2014). Ombra

describes music written for scenes with ghosts or witches, suspenseful in nature. Tempesta describes music written for stormy, chaotic, terrifying scenes.

Disciplinary background B. Studies in neuroscience offer further support for the division of scary music into two subtypes. The brain has different neural networks for terror and anxiety (Adolphs, 2013). These separate networks may be related to the difference in the behaviors these fearful emotions motivate.

Abstract

This study has two aims: i) the creation of a large database of original film music excerpts that accurately portray terror and anxiety, respectively, and ii) the determination of how music communicates these two different fearful emotions musically and acoustically.

This study has produced a new database of music that communicate terror and anxiety called FEARMUS. These highly ecologically valid musical stimuli are useful for research on fear, film music, music and emotion, and emotion research more broadly. The database contains 100 musical excerpts (50 for terror, 50 for anxiety) that are taken from contemporary horror film soundtracks. Each excerpt is 10-30 seconds in length. FEARMUS, along with metadata and emotion rating data collected from 99 participants (66 female, age M = 25.84, SD = 5.84), is available online for use in psychological experiments and music research (https://osf.io/8sjtw/). The study also clarified the musical and acoustic differences between music that communicates terror and music that communicates anxiety through the use of topic theory analyses and acoustic analyses. Terrifying music is frantic, noisy, thundering, and shrill with walls of sound that evoke screams, earthquakes, cars crashing, or animals shrieking. On the other hand, anxious music communicates a sense of impending doom with ponderous marching tempi, held tones, sudden entrances, dynamic swells, and figurations that evoke whispering, footsteps, or ticking clocks. Acoustically, terrifying music also has a brighter timbre than anxious music exhibited by a higher average spectral centroid, flatness, rolloff, and zero crossing rate.

Interdisciplinary implications. As shown by these results, classic music theory methods pair well with psychological research in the pursuit of understanding how music communicates emotions. Topic Theory in particular provides useful terminology and analytic methods for similar studies. Topic theory analysis also aids in communicating the musical significance of acoustic analyses, as shown in this investigation. We hope that our methods provide a useful template for future work in this area. Research on music and emotions is integral to the theme of participation in music scholarship. In better understanding musically conveyed emotions, we further our understanding of how composers, performers, and listeners interact and communicate as they each participate in music making together.

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Geometries in sound: A way to empower the listener towards certain genres of contemporary art music

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Disciplinary background A. Disciplinary background A. Historical Musicology.

Within this large group of studies on music perception, only a small number deal with the contemporary experimental scene (e.g. Deliege, 1989; Windsor, 1995 ; Kozak, 2021). This lack seems paradoxical as many genres of experimental music are themselves concerned with these very questions of sonic perception. While the consumption and appreciation of contemporary art music still largely follows general mechanisms that are dependent on familiarity, background, economy and market (Bourdieu 1979, Menger 2004), this paper proposes that contemporary and experimental music practices are particularly well suited to being studied at the perceptual level (Wanke 2021).

Disciplinary background B. Disciplinary background B. Cognitive Sciences.

Recent advances in the field of cognitive sciences have led to the definition of new perspectives on the diverse mechanisms underlying our aural experience of sound and music. These perspectives include embodied music cognition, multimodal approaches, music neuroscience, and Gestalt-based approaches, opening up to the interdisciplinary investigation of this research area (Bregman 1990; Lehar 2004; Leman 2005; Brattico 2013). I carried out a listening survey in order to explore the potential of certain genres of contemporary art music to engage us on a different level than with more conventional music genres

Abstract

The listening survey –consisting of a series of questions to evaluate the degree of matching between audio samples and visual images– aims to explore the nature of the connections between music and its mental representations evoked during listening (Eitan et al 2006; Johnson 1987) The goal of this paper is to investigate how image-sound matching may function as a boost for listening and to strengthen a particular perceptual engagement of certain genres within contemporary art music.

These genres –that encompass post-spectralism, minimalism, electroacoustic music, glitch-electronica, and various offshots of IDM (dubstep, techno)– revolve around the creation sonic textures and masses in motion organized within sound configurations (Wanke 2021; Solomos 2019) This music is often associated, during listening, with visual and tactile sensorial qualities and abstract geometries organized according to Gestalt and kinaesthetic principles. The results of the listening survey tell us that the sound configurations typical of this music tie in with geometries, shapes, motions, and tensions that call in forces of physical world , and evoke a set of gestures and actions that we assimilate and integrate according to our diverse backgrounds. Musical episodes containing contrasting sound masses, transient appearances of fragile overtones, or repeated glissandi arise mental representations such as, for instance, solid blocks, oscillating lines, or descending profiles. The level of embodiment however depend to the schema-driven associations which draw on our experiential cognition of the external world: therefore a descending glissando may simply elicit an abstract declining line or an embodied sense of falling. Given that there is always one image that mismatches with the audio sample, there is a significant matching between spectrotemporal features of the audio sample and images-actions (independently from musical training). However, participants with a low familiarity with the audio samples tend to find more appropriate the images depicting a limited embodiment.

Interdisciplinary implications. A research that ties in static descriptions of the cognitive science and behavioural processes the musical experience, serves as a model for mediated research between musicology, cognitive psychology and neuroscience. By exploring a cross-modal type of stimuli this study can be further applied (i) in the field of music therapy for typical cases such as synaesthesia and amusia, and (ii) at educational level. The ultimate outcome focuses in fact on how this music –often regarded as an elitist form of culture that has little impact on society in general– works as a cognitive resource for creative, interpretive and didactic endeavours and whether this study can provide new tools that can empower the listener to access this kind of music.

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A queer phenomenology of furniture music: A case study of Alvin Lucier's *I am sitting in a room* (1969) as musical furniture

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Disciplinary background A. *I am sitting in a room*: a statement famously pronounced by the American experimental composer, Alvin Lucier (1931-2021). Perhaps we have not yet fully considered how the room, in some way, also sits with us. How did we come to take up the room in which we sit, how was the room already ready for our arrival, and what do we hear and/or listen to in these spaces? These are some of the questions regarding furniture music (music that is heard but not listened to) that are

prompted by feminist scholar, Sara Ahmed's queer phenomenology (Ahmed, 2006), which is not a phenomenology of queer experience (which is the philosophy of experience or consciousness as it relates to queerness), but rather, a queering of phenomenology. Like Gavin Lee (Lee, 2020), I foreground queer phenomenology as disorientation.

Disciplinary background B. Inspired by Erik Satie's (1866–1925) musique d'ameublement, I redraw conventional genre boundaries for furniture music to create a theoretical space for music like Muzak, ambient music, chairs that speak, among other things, to come together. In this paper, I argue that music theory can address disorienting experiences of sonic objects, bodies, spaces, and the relationship between them through an analytical case study of Lucier's *I am sitting in a room* (1969): a recording of multiple generations of re-recorded spoken text repeated into a room.

Abstract

I argue for a queer phenomenological interpretation of this composition as a piece of (meta-) furniture music.

First, I argue that Lucier is best regarded as a composer of furniture music. Second, I investigate how Lucier instrumentalizes sameness and difference in *I am sitting in a room* (1969) . Third, I present two analytical visualizations of the transformational process of *I am sitting in a room*: (1) a bar graph and (2) a collection of analytical images. The bar graph maps the various formally differentiated sections that result from Lucier's compositional process, what he calls generations, over the resonance, or sonic diffusion, of the resulting music. The collection of analytical images reflects the poetic transformation that occurs in the composition. I apply a comparable visual process as Lucier's sonic process to generate 32 images that make for a productive visual representation to understand the queer phenomenology of the piece as furniture music.

Interdisciplinary implications. Finally, I conclude that Lucier's utilization of space through time instrumentalizes a sense of 'the room' in which any given instantiation of the piece exists.

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