3rd International Conference

PSYCHOLOGY AND MUSIC – INTERDISCIPLINARY ENCOUNTERS

Book of Abstracts

23 – 26 October 2024

University of Zagreb
Academy of Music – Faculty of Humanities and Social Sciences

ZAGREB ACADEMY OF MUSIC

UNIVERSITAS STUDIORUM ZAGRABIENSIS MDCLXIX

150

3rd International Conference
PSYCHOLOGY AND MUSIC – INTERDISCIPLINARY ENCOUNTERS
BOOK OF ABSTRACTS

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CONTENTS

EDITORS'S NOTE

Dear colleagues and friends,

We are pleased to announce the third international conference, ***Psychology and Music – Interdisciplinary Encounters*** **(PAM-IE Zagreb 2024)**, which will be held 23 – 26 October 2024 at the University of Zagreb Academy of Music and Faculty of Humanities and Social Sciences. The conference will follow the previous two editions organised by the University of Arts Faculty of Music in Belgrade (a brief history of the PAM-IE conferences is available here).

The third international conference *Psychology and Music - Interdisciplinary Encounters* (PAM-IE) is being organized for the first time in Croatia. The conference's interdisciplinary nature and focus on experts from various fields, as well as on-field practitioners, ensures that everyone's voice is heard. As in the previous two editions of the conference, the goal is to bring together experts from different fields and from different institutions who deal with the psychology of music in a broader sense. The conference provides an opportunity to present one's work, exchange ideas, get to know each other, socialize, and connect on some joint projects in the future. In this way, the aim is to contribute to creating cooperation and networks among researchers from different geographical and cultural areas, which can lead to greater replicability of research, and open new avenues for exploration.

The rich programme of the conference includes four plenary lectures, thematic oral sessions, workshops, posters, presentations of new publications in the field of music psychology, and social events providing opportunities for participants to network and socialise. We wish to thank everybody who contributed to making this conference happen: our home institutions, members of the programme and organising committees, abstract reviewers, our volunteering students, colleagues, supporters and friends, audiences, and, above all, our keynote speakers and all the active participants who made this conference programme so unique.

Sanja Kiš Žuvela and Ana Butković

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VENUES

23 & 25 October 2024

Academy of Music, Trg Republike Hrvatske 12, Zagreb

https://goo.gl/maps/N9ipYZkcybomsiLy7

Registration & Coffee breaks:
Teachers' Lounge, 1st floor
Wednesday, 23 October 2024, 14-18 h;
Friday, 25 October 2024, 8:30-9:30 h & 10:30-11 h

Keynote lectures & Welcome reception:
Bersa Hall, ground floor

Workshops, Book presentations, Oral sessions:
Classrooms 324, 326, 339: 3rd floor
Stančić Hall, Huml Hall: 4th floor

24 & 26 October 2024

Faculty of Humanities and Social Sciences, Ivana Lučića 3, Zagreb

https://goo.gl/maps/pTLfTMyPKrRrYd9GA

Registration:
Library Entrance Hall
Thursday, 24 October 2024, 8.45-11.15 & 15.00-15.30 h
Saturday, 26 October 2024, 9.00-9.30 h

Coffee breaks: in front of D2 Hall

Keynote lectures: D7, ground floor

Oral sessions: A229, 2nd floor; D2, ground floor; Library Conference Hall, 2nd floor

Poster session: D2; Entrance Hall

Closing ceremony: D7, ground floor

ABSTRACTS

Wednesday, 23 October 2024

University of Zagreb Academy of Music

PROGRAMME

9:30 – 15:30 h: Workshops

9:30 - 10:30 h
1. Jasna Jovićević: Improvisation in Music – Polygon for Artistic Creation and/or a Well-being Lab – Stančić Hall, 4th floor
2. Silvija Sarapa & Ksenija Burić: Orff Schulwerk Workshop: Learning Through Personal Experience – Classroom 326, 3rd floor

11 - 12:30 h
1. Jelena Vuković & Mia Miljković-Đuzel: "Let your body teach you how to play piano" - Stančić Hall, 4th floor
2. Cheryl Ockrant: Feeling safe vs Being Safe; Transforming performance anxiety by understanding our bodies through PolyVagal Theory - Classroom 326, 3rd floor

14 - 15:30 h
1. Jenifer Yáñez Villahermosa: From motion to emotion: Using improvisational theatre as a tool for enhancing musicians' expressive skills – Classroom 326, 3rd floor
2. László Stachó: Keeping time – Stančić Hall, 4th floor
3. Gabriele Wilz & Lisa Schön: How to use individualized music listening for people with dementia living in institutional or home care settings – Classroom 339, 3rd floor

16:00 – 17:30: Book presentations – Stančić Hall, 4th floor
Chair: Ana Butković

1. Bogunović, B., Timmers, R., & Nikolić, S. (2024). *Psychological Perspectives on Musical Experiences and Skills. Research in the Western Balkans and Western Europe*. Open Book Publishers.
2. Parncutt, R. (2024). *Psychoacoustic Foundations of Major-Minor Tonality*. MIT Press.
3. Markovina, A. (2019). *GLÜCKS-Spiel*. Staccato.
4. Toropova, A., & Lvova, T. (2018). *Music activity therapy in clinical practice: The musician's experience in the psychological rehabilitation of children with a psychosomatic personality profile*. Lambert Academic Publishing.

18:00: Opening ceremony – Bersa Hall, ground floor

18:30 – 19:30: Keynote 1 – Bersa Hall, ground floor

Suvi Saarikallio: *Is music and emotion research an act of building a socially sustainable future?*
Chair: Sanja Kiš Žuvela

19:30 Welcome reception – Bersa Hall lounge, ground floor

Wednesday, 23 October 2024

9:30 – 10:30 h: **Workshops 1**

Improvisation in Music – Polygon for Artistic Creation and/or a Well-being Lab

Jasna Jovićević

College for Vocational Studies for Preschool Educators and Trainers, Subotica, Serbia

Stančić Hall, 4th floor

Background

Music therapy operates at the intersection of research, science, and community-based participatory practice, seldom recognized as contemporary artistic expression by artists. The concept of health musicing has broadened the interdisciplinary research area of health and well-being, emphasizing human interaction and relationship performance, particularly in improvised music. Practitioners of free music improvisation often describe collective music-making as a meditative session, with the unique role of being both observer and participant simultaneously. This dual role involves engaging with and observing the conditions of the mind, body, emotions, and methods of relating with sound, the body, and others in the context of interactive performance.

Aims

This study proposes improvised music as a platform for qualitative artistic research within healthcare contexts. It explores how improvisation can lead to transfer effects on various levels of individual functioning. The preparation for creation and interpretation, the performance itself, and the outcomes of the creative process in jazz music, could be evaluated and disseminated both as artwork and as a contemporary music practice with health benefits.

Short outline of the activities to be undertaken by the presenters/audience

During the workshop, participants will engage in various mind/body/music-making practices that may elicit diverse reactions, experiences, and insights. These practices aim to enhance understanding of the preparation for music improvisation, including awareness of breath, body, instrument, and others and the interactive structures between participants. The creative process will be examined through introspection and self-reflection, followed by group discussions.

Implications for practice

The act of creation in improvisation extends the boundaries of perception and imagination, fostering openness, directness, and impulsiveness in both the body and mind (Bailey, 1993). Being situated in the present moment allows for attentive observation of identity creation, performative practice, and affective relations among participants, musical material, performer, instrument, thoughts, and body (Jovićević, 2020). Repeated practice of this observational attitude enhances the musician's awareness and readiness to experiment, potentially improving individual and collective functioning (Jovicevic, 2019).

Specific value of the workshop for the conference

This workshop on improvisational practices, alongside other contemporary artistic research, investigates absolute and relative perceptions of artistic music, producing new knowledge and understanding applicable to methods impacting recipients' well-being. Artistic research in music, resulting in artistic performance, supports practitioners in creatively experimenting and contributing to healthcare and well-being across disciplinary boundaries. The re-contextualized social setting, creative process, and outcome dissemination strategy can be

integrated into both therapeutic and artistic domains, thus expanding the potential for new knowledge and practice in the psychology of music (Kahr, 2022).

References

Bailey, D. (1993). *Improvisation: Its nature and practice in music*. Da Capo Press.

Jovicevic, J. (2019). Flow Vertical: Composing and improvising original music inspired by bodily sound vibrations. *Leonardo Music Journal, 29*, 78–82. https://doi.org/10.1162/lmj_a_01068

Jovićević, J. (2020). Composing the actual: Brainwave sonification as materialized intensity of virtual relations. *Journal of Art and Media Studies, 23*, 29-44. https://doi.org/10.25038/am.v0i23.395

Kahr, M. (Ed.). (2022). *Artistic research in jazz: Positions, theories, methods*. Routledge.

Keywords: attentive improvisation, collective musicking, well-being and music, preparatory exercise

Orff Schulwerk Workshop: Learning Through Personal Experience

Silvija Sarapa[1], Ksenija Buric[2]

[1]Croatian Orff Schulwerk CROSA association, Zagreb, Croatia. [2]CROSA, Zagreb, Croatia

Classroom 326, 3rd floor

Background

Orff Schulwerk is a pedagogical and artistic concept of teaching music developed by German composer Carl Orff and his colleague Gunild Keetman. It is a holistic approach to music education that emphasizes exploration, creativity, and dance and movement.

Orff's philosophy of teaching music stemmed from his personal belief that every child is musical (Orff, 1978) and has the capability of learning, transforming, reasoning, and expressing creatively (Kotzian, 2018; Yaprak Kotzian, 2018).

Aims

The main aim of an Orff Schulwerk workshop is an exploration of the importance of elemental music-making. Furthermore, focusing on learning through personal experience keeps participants engaged in hands-on activities. All of that allows them to discover musical concepts through many of their senses and actions and to develop creativity and imagination. All those activities can help integrate Orff techniques into the classroom.

Short outline of the activities to be undertaken by the presenters/audience

Dance and movement: movement is a central component of Orff Schulwerk. Participants will use movement and dance sequences that are integrated with the music-making activities exploring different ways of moving to represent musical elements such as rhythm, dynamics, and form. Participants will explore their creativity through improvisation trying to find their movement sequences in response to a piece of music.

Singing and vocal expression: participants will sing folk songs, chants, and rounds, exploring different vocal techniques and styles. Vocal improvisation and experimentation with different vocal timbres will also be included.

Implications for practice

A workshop provides participants with a rich and immersive introduction to this approach to music education. By actively engaging in musical activities and reflecting on their own experiences, participants will gain valuable insights into how they can foster creativity, expression, and musical understanding in their students.

Specific value of the workshop for the conference

Throughout the workshop, participants will have opportunities to reflect on their experiences and discuss how they might apply Orff Schulwerk principles and Orff philosophy in their teaching practice. This can involve sharing insights, asking questions, and brainstorming ideas for incorporating Orff-inspired activities into the lessons. Ultimately, the specific value of this workshop lies in its ability to empower participants with practical tools, insights, and inspiration to enhance their teaching effectiveness and nurture the musical growth and development of their students.

References

Kotzian, R. (2018). *Orff-Schulwerk Rediscovered - Teaching Orff: Music and Teaching Models.* Schott.

Orff, C. (1978). *The Schulwerk, Volume 3: The Documentation.* Schott.

Yaprak Kotzian, E. (2018). *Orff-Schulwerk Handbook: Principles of Elemental Music and Movement Pedagogy*. Schott.

Keywords: dance and movement, elemental music, improvisation, Orff Schulwerk

11 – 12:30 h: **Workshops 2**

"Let your body teach you how to play piano"

Jelena Vuković[1], Mia Miljković-Đuzel[2]

[1]Faculty of Music Belgrade, Belgrade, Serbia. [2]Academy of Music Zagreb, Zagreb, Croatia

Stančić Hall, 4th floor

Background

Motor development is the process that most intensively happens within a person from birth to approximately the sixth or seventh year of life, which is the most favourable stage for developing a child's innate abilities (Bushnell & Boudreau, 1993). With the adoption of balance, and then coordination, the synthesis of all these elements becomes obvious as a child starts to move and play around. These capacities fully enable children to become aware of themselves, space, people and objects surrounding them. Motor development includes changes in motor behaviour throughout the lifespan, and it is a sequential, continuous process of change associated with age. Movement results from the dynamic interaction of multiple components and organic systems to satisfy a human's internal or external demands.

Aims

Control of motor actions is a physiological process in which motor development occurs, and learning motor actions enables the systematic development of the motor system, which results in a permanent change in motor behavior, under the influence of experience (Hestbaek et al., 2017). Our aim is to present how to use accomplished natural movement in the context of piano playing.

Short outline of the activities to be undertaken by the presenters/audience

Correction and removal of maladaptive movements and their recognition of hand position and sound colour. Participants of the workshop will be shown also recordings of students taking part in our experiment (learning and practising piano based on neuroscience strategies).

Implications for practice

Using gravity and physiological movements improves velocity and sound quality, reduces long hours of practice, and provides a pianist with a healthy body and mind (Ericsson et al., 1993). Participants will be shown methods and given some ideas on recognising technical and musical problems in piano performance.

Specific value of the workshop for the conference

All pianists participating in the conference are welcome to join, finding a way to solve problems independently, without unnecessary old piano practising methods. We will compare the work of piano students unfamiliar with these methods with those practising based on these theories, to show the differences in the speed of acquiring new knowledge. Both groups will be given the same composition three weeks before the conference. Works that will be played are F. Chopin: Etude op. 25 no. 2 in f minor and W. A. Mozart: Sonata in C major K 330 (exposition).

References

Bushnell, E. W., & Boudreau, J. P. (1993). Motor development and the mind: The potential role of motor abilities as a determinant of aspects of perceptual development. *Child Development*, *64*(4), 1005–1021.

Ericsson, K. A., Krampe, R. T., and Tesch-Römer, C. (1993). The role of deliberate practice in the acquisition of expert performance. *Psychological Review, 100*, 363–406. https://doi.org/10.1037/0033-295X.87.3.215

Hestbaek, L., Andersen, S. T., Skovgaard, T., Olesen, L. G., Elmose, M., Bleses, D., Andersen, S. C., & Lauridsen, H. H. (2017). Influence of motor skills training on children's development evaluated in the Motor skills in PreSchool (MiPS) study-DK: Study protocol for a randomized controlled trial, nested in a cohort study. *Trials*, *18*, 400. https://doi.org/10.1186/s13063-017-2143-9.

Keywords: piano playing, control of motor actions, neuroscience, using gravity and physiological movements in piano playing.

Feeling Safe vs Being Safe: Transforming Performance Anxiety by Understanding Our Bodies Through PolyVagal Theory

Cheryl Ockrant

York University, Toronto, Canada

Classroom 326, 3rd floor

Background

This presentation will begin by outlining the interplay of trauma, body memory, vulnerability, and shame in the context of performing arts, by examining Polyvagal Theory and its relevance to safety and creativity. Polyvagal Theory describes the evolution of how our nervous system adapts to challenges by providing an organizing principle of identifying neural circuits and defensive strategies; mobilization associated with flighting or flight, and immobilization associated with hiding or feigning death.

Aims

The presentation will discuss how we, as performers, presenters, and human beings, can find our way beyond extreme anxiety to a place of acceptance, so that we can begin to work *with* our nervous system, rather than against it. This has often been the traditional model of therapeutic approach to performance anxiety. By following the four R's: *recognizing* the autonomic state; *respecting* the adaptive survival response; *regulating or co-regulating* into a ventral vagal state; and *re-storying* (Dana, 2018) performance anxiety can be addressed and *pre-empted* using

specific exercises in a step-by-step process. This approach is a bottom-up method, meaning the body memory dictates the 'story' to the brain.

Short outline of the activities to be undertaken by the presenters/audience

By understanding the central nervous system, we can interrupt the anxiety ladder. The presenter will detail her own progress from severe anxiety to a more resilient cellist able to navigate anxiety to safely return to the performing stage. Simple and accessible exercises will be explained in detail and demonstrated. The audience will be invited to participate and interact in the demonstration. A social engagement demonstration using free play/free improvisation will be available to all instruments or voices.

Implications for practice

A basic understanding of the safety signals in our central nervous system through a Polyvagal Theory lens will be reviewed in the context of performance practice as well as ideas for igniting growth and creativity under pressure. The integration of Polyvagal Theory and free improvisation is a key part of the creative re-engagement process while addressing anxiety, and can help foster resilience, safety, and the rediscovery of creative expansiveness amidst a world fraught with traumas, when navigating the complexities of creativity and social interaction becomes synonymous with personal survival. By touching on the experience of *'free play',* this exploration in social engagement becomes a personal evolution.

Specific value of the workshop for the conference

By blending trauma recovery with the innate human need for connection, we underscore the importance of connectedness, co-regulation, and social engagement in nurturing mental and physical well-being.

References

Dana, D. (2018). *The polyvagal theory in therapy: engaging the rhythm of regulation* (First edition.). W.W. Norton & Company.

Keywords: performance anxiety, polyvagal theory, neuroception, co-regulation, improvisation

14 – 15:30 h: **Workshops 3**

From motion to emotion: Using improvisational theatre as a tool for enhancing musicians' expressive skills

Jenifer Yáñez Villahermosa

Prins Claus Conservatorium, Groningen, Netherlands. University of Groningen, Netherlands

Classroom 326, 3rd floor

Background

The importance of learning to create an expressive performance is a consistently discussed topic in music education. However, how musicians develop "expressiveness" is still understudied. Recent investigations have shown that musicians' motor behavior is a significant source of perceptual information during performances (Davidson, 2007), as it helps audiences differentiate musicians' expressive intentions and it often serves as a performance quality indicator (Waddell & Williamon, 2017). Nevertheless, most current teaching approaches in

Higher Music Education focus mainly on acoustic characteristics of performance, and they lack clear goals and systematic teaching patterns (Karlsson & Juslin, 2008; Meissner, 2021).

For centuries, some of the most influential theater methods have used physical exploration (motion) to stimulate imagination and create affective states (emotions) in actors. These approaches are rooted in embodied cognition theories, which claim that physical experience shapes conceptual thought, and this is contingent upon the body's interactions with its environments (Kemp, 2012). Drawing inspiration from theater practices, the method "From motion to emotion" for enhancing expressiveness was developed by this author, using improvisational theater as a basis.

Aims

This workshop is designed to acquaint participants with the method. We will share insights and reflections from previous participants to demonstrate its effects and will foster discussion around teaching approaches.

Short outline of the activities to be undertaken by the presenters/audience

After an oral introduction to improvisational theater, participants will engage in practical exercises to experience it firsthand, exploring how to acquire a "physical vocabulary" applicable to music performance. Participants will be encouraged to share their experiences during debrief moments. This workshop is accessible to individuals with no previous theater experience. The total duration would be 90 minutes.

Implications for practice

This contribution emphasizes the importance of integrating visual characteristics of performance in teaching approaches, increasing musicians' body awareness, and strengthening body-mind connection. These efforts can positively impact individuals' development, enabling them to create convincing performances while boosting self-confidence.

Specific value of the workshop for the conference

This method merges embodied cognition theories with theater techniques to innovate educational approaches to expressiveness, making it relevant for musicians wanting to enhance this skill, music educators aiming to teach it, and experts from the field of psychology interested in how it develops.

References

Davidson, J. W. (2007). Qualitative insights into the use of expressive body movement in solo piano performance: A case study approach. *Psychology of Music, 35(3),* 381–401.

Karlsson, J., & Juslin, P. (2008). Musical expression: An observational study of instrumental teaching. *Psychology of Music, 36*, 309-334.

Kemp, R. (2012). *Embodied acting: What neuroscience tells us about performance.* Routledge.

Meissner, H. (2021). Theoretical framework for facilitating young musicians' learning of expressive performance. *Frontiers in Psychology, 11,* 584171. doi:10.3389/fpsyg.2020.584171

Waddell, G., & Williamon, A. (2017). Eye of the beholder: Stage entrance behavior and facial expression affect continuous quality ratings in music performance. *Frontiers in Psychology, 8,* 513.

Keywords: music expressiveness, emotion, embodiment, theatre, improvisation

Keeping time

László Stachó

Liszt Academy of Music, Budapest, Hungary

Stančić Hall, 4th floor

Background

Timekeeping is arguably a central issue in music performance. Despite its seminal importance, surprisingly little research has been conducted on performers' mental strategies underlying the performance of the metrical/rhythmical process of a composition or during improvisation. Similarly, the efficacy of routine pedagogical methods that enhance performers' metrical/rhythmical skills is mostly unproven. However, the widespread concept of metrical/rhythmical skill as built on an internal metronome, which is the foundation of most relevant pedagogical methods, has recently been challenged from both neuropsychology and pedagogy (for an important review, see Block & Grondin 2014).

Aims

Building on studies of the cognitive representation of meter and musical form (cf. the above review), I propose to define metrical/rhythmical skill as a primarily attentional skill which is based on a cognitive 'navigating' ability of the musical process. This specific 'navigating' ability builds on Moments of Focused Immersion (MFIs, Stachó 2018) and involves specific attentional processing which includes forward-focused ('anticipation'), backward-focused ('retrospection'), and present-moment-focused ('mindfulness') MFIs at well-definable moments in the musical process.

Short outline of the activities to be undertaken by the presenters/audience

I argue for and intend to illustrate through an analysis of selected audio and video recordings and short live demonstrations that stable long-term timekeeping in music originates from the above-defined 'navigation' of the metrical structure (of a composition or a projection of a metrical process in an improvisation) in a cognitively 'deductive' way rather than from a metronomically 'inductive' internal process.

Implications for practice

Building on this model, I have developed a training of rhythmical/metrical skill, which I have tested in pedagogical practice in a dozen countries over the past few years, with exceptional effectiveness. In the workshop, besides the demonstrations mentioned above, I shall aim to reveal how individual elements of the training contribute to its efficiency.

Specific value of the workshop for the conference

Besides the model's strong potential for applications in music pedagogy—including the efficient training of metrical/rhythmic skills—further development and operationalisation of the core theory can open the way for an innovative cognitive approach to music theory, analysis, and aesthetics.

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Stachó, L. (2018). Mental virtuosity: A new theory of performers' attentional processes and strategies. *Musicae Scientiae, 22*(4), 539–557. https://doi.org/10.1177/1029864918798415

Keywords: time-keeping, attentional strategies, mental navigation, metrical/rhythmical skill, performance pedagogy.

How to use individualized music listening for people with dementia living in institutional or home care settings

Gabriele Wilz, Lisa Schön
Friedrich-Schiller-University Jena, Jena, Germany
Classroom 339, 3rd floor

Background

Listening to personally relevant music can be regarded as a promising non-pharmacological intervention for people with dementia (PwD). Previous research shows that listening to individualized music can promote positive emotions and memories as well as a reduction of stress, agitation, and anxiety of PwD (Sittler, et al., 2021; van der Steen et al., 2018; Weise et al., 2020a; Weise et al., 2020b).

Aims

The workshop provides an overview of the implementation of an individualized music intervention for PwD. We will explain how to create individualized playlists, what is important to know when using the intervention and the challenges that can arise during individualized music listening (IML).

Short outline of activities to be undertaken by presenters/audience

The workshop will introduce the newly developed IMuD app. The app includes a music preference questionnaire, video tutorials on how to deliver the music intervention, questionnaires to collect short-term effects of the intervention, and the music playlists themselves. The workshop audience will be guided through the questionnaire, which provides the most useful information for creating individualized playlists for PwD.

The individualized playlists include music that is meaningful to the participants, especially during their youth and young adulthood. The workshop will also provide the application of IML, where PwD listen to individualized music via headphones and the IMuD app.

Implications for practice

IML can be viewed as an important non-pharmacological intervention to promote well-being and quality of life of PwD. The application of this specific intervention can be very useful for institutional care, day care and also for the home care setting.

Specific value of the workshop for the conference

The app-based individualized music intervention can be rated as a very relevant intervention and an important example of the strong efficacy of music for PwD and their caregivers.

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Sittler, M.C., Worschech, F., Wilz, G., Fellgiebel, A. & Wuttke-Linnemann, A. (2021). Psychobiological mechanisms underlying the health-beneficial effects of music in people living with dementia: A systematic review of the literature. *Physiology & Behavior, 1*(233), 113338. doi: 10.1016/j.physbeh.2021.113338.

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Weise, L., Töpfer, N. F., Deux, J. & Wilz, G. (2020a). Feasibility and effects of individualized recorded music for people with dementia: A pilot RCT study. *Nordic Journal of Music Therapy, 29*(1). 39-56. doi: 10.1080/08098131.2019.1661507

Weise, L., Töpfer, N. F., & Wilz, G. (2020b). Unmittelbare Reaktionen von Menschen mit Demenz auf individualisierte Musik - Analyse von Verhaltensbeobachtungen im Pflegeheim. *Pflege*, *33*(5), 309–317. https://doi.org/10.1024/1012-5302/a000757

Keywords: individualized music listening, people with dementia, app-based intervention

16:00 – 17:30 h: **Book presentations**

Stančić Hall, 4th floor

Chair: Ana Butković

Bogunović, B., Timmers, R., & Nikolić, S. (2024). *Psychological Perspectives on Musical Experiences and Skills. Research in the Western Balkans and Western Europe*. Open Book Publishers.

Blanka Bogunović[1,2], Renee Timmers[3], Sanela Nikolić[1]

[1]Faculty of Music, University of Arts in Belgrade, Belgrade, Serbia. [2]Department of Psychology, Faculty of Philosophy, University of Belgrade, Belgrade, Serbia. [3]Department of Music, University of Sheffield, Sheffield, United Kingdom

This book was conceived following a successful international conference on the psychology of music in Belgrade, Serbia (PAM-IE Belgrade 2019), that hosted a large number of presentations by Western Balkan authors alongside authors from Europe and more widely. We aimed to present the new collective monograph due to a joint endeavor of the Western Balkans authors, a part of the Regional Network Psychology and Music members (founded in 2020), and the international authors, the ESCOM representatives who presented at the conferences. *Psychological Perspectives on Musical Experiences and Skills* features recent research from the Western Balkans region, foregrounding its specific topics, methods, and influences, and bringing it into productive conversation with complementary research from Western Europe and authors from further afield. The essays in this collection investigate the psychology of listening and performance, experiences and skills, and their relevance for music practice. Employing a range of research methodologies, they address themes including aesthetic and emotional experiences of music, listening in context, memorization, personality and motivation, stress, anxiety, and musicians' well-being. Authors reflect independently and collaboratively on how these psychological processes are shaped by music education and, ultimately, by the different traditions and geopolitical conditions in the two regions. The result is a volume that emphasizes how musical experiences and practices happen not in isolation but in socio-cultural environments that contribute to their definition. The volume will appeal to musicians, music educators, students, researchers, and psychologists interested in the psychology of music and offer a milestone in decolonizing academia.

https://www.openbookpublishers.com/books/10.11647/obp.0389

Parncutt, R. (2024). *Psychoacoustic Foundations of Major-Minor Tonality*. MIT Press.

Richard Parncutt

University of Graz, Graz, Austria

How does everyday Western music work? Why do the tones, melodies, and chords combine as they do? Despite a century of tonal modernism and global cultural interaction, most Western and Westernized music is still structured around major and minor scales and chords. Why is that?

Countless thinkers have struggled to explain the nature and origin of musical structures. New progress is possible by combining approaches from music theory and music psychology. Relevant music-theoretic foundations include

Rameau's fundamental bass, Riemann's harmonic function, Schenker's hierarchic analysis, and Forte's pitch-class set theory. Psychological foundations include Bregman's auditory scene, Terhardt's virtual pitch, and Krumhansl's tonal hierarchy. Drawing in addition on statistical analyses of notated music corpora, we can chart a middle path between cultural relativism and scientific positivism and bring music theory into meaningful discourse with empirical research.

Our musical subjectivity depends on our past musical experience and hence on music history and its social contexts. It also depends on physical sound properties – investigated in psychoacoustical experiments and tested with mathematical models. An evidence-based approach to major-minor tonality draws on all relevant academic disciplines to create a theory that is comprehensive, creative, and critical, and can shed new light on familiar music-theoretic concepts: interval, consonance, chord root, leading tone, harmonic progression, modulation. Such a theory also promises to separate aspects of major-minor tonality that are based on human biology or general perceptual principles from those that are culturally arbitrary.

https://direct.mit.edu/books/oa-monograph/5732/Psychoacoustic-Foundations-of-Major-Minor-Tonality

Markovina, A. (2019). *GLÜCKS-Spiel*. Staccato.

Ana-Marija Markovina

IfBK GmbH, Cologne, Germany

In my book GLÜCKS-Spiel I introduce the terms happiness and exercise, which are usually considered contrasts and relate them to each other in the context of playing the piano.

Both terms have a wide range of connotations connecting these two categories of meaning in the cultural historical as well as in the philosophical and psychological area and in the area of my experience as a concert pianist and piano pedagogue. The extensive study of happiness and practicing is the fundamental basis of my pedagogical and artistic work when giving international masterclasses. It also provides the basis for the "Klavierzimmer" competition, which is aimed at amateur pianists and was held for the first time in 2021.

One of the relevant aspects in this context is practicing the piano. The neuropsychological findings of practicing and the feeling of happiness are also central aspects. Both on the neuropsychological level and on the levels mentioned above, the close connection between happiness and practicing becomes clear. Piano exercise promotes personality traits on both the personality-psychological and neuropsychological levels. Personality development is a cognitive-emotional practice process alongside a neurobiological practice process. This becomes particularly clear in the concrete practice process in musical work. As part of the book, the findings are combined with practical explanations using examples of notations from piano literature.

This book is about the neurophysiological explanation of the neuronal processes that occur when making music. And in various dimensions: It is about memory, the training of fine motor skills, and use of the various cortices and the emotional involvement of the limbic system. Other aspects include the personality-psychological processes involved in dealing with mistakes, i.e. attribution theory. It also addresses questions such as: What happens to us when we practice concentration and are in flow? I am discussing the psychological aspects of coping with everyday life such as loneliness, the pressure of expectations, motivation and resignation, envy, fear of failure, excessive demands and the horror vacui. I analyze learning processes neuropsychologically, philosophically and psychologically.

Toropova, T.V., & Lvova, T. (2018). *Music activity therapy in clinical practice (The musician's experience in the psychological rehabilitation of children with a psychosomatic personality profile)*. Lambert Academic Publishing.

Alla Toropova[1,2], Tatiana Lvova[3]

[1]Independent Researcher. [2]High School of Economics, Moscow, Russian Federation. [3]Russian Academy of Music named after Gnessins, Moscow, Russian Federation

The monograph introduces the music therapy program for the psychological rehabilitation of children with a psychosomatic personality profile. Currently, music therapy methods are included in a complex of non-drug clinical support and care measures for various types of diseases. In this monograph we show one of the music-therapeutic approaches in rehabilitating children with Bronchial Asthma. In children with asthmatic syndrome, respiratory function is impaired under certain circumstances associated with retraumatization, and stiffness and incoordination of movements are also observed as an external sign of blocked experiences. The experience presented in the monograph in conducting a support program using music therapy methods was obtained during testing at the University Children's Clinical Hospital of the First Moscow State Medical University. The technique has proven the effectiveness of musical rehabilitation of children with Bronchial Asthma and stabilization of the child's condition through singing, breathing, plastic movement and intoned experience. In our work, we use various vocal methods that are not perceived by the child as dangerous, and, at the same time, are a way to train and restore breathing function. Music therapy sessions help improve coordination between the hands, singing and breathing. The book describes one of the possible music-therapeutic approaches to rehabilitation. With the cooperation of a doctor and a music therapist in identifying goals that are important to achieve, music therapy sessions can help in the early prevention of bronchial asthma, possibly slowing the rate of development of the disease, as well as providing rehabilitation assistance in the future.

18 – 18:30 h: **Opening ceremony**

Bersa Hall, ground floor

18:30 h: **Keynote 1**

Bersa Hall, ground floor

Chair: Sanja Kiš Žuvela

Is music and emotion research an act of building a socially sustainable future?

Suvi Saarikallio

University of Jyväskylä, Jyväskylä, Finland

Can music solve global challenges, lead to improved connection and empowerment, and foster an inclusive society? Music is often introduced as a resource for well-being, but as a discipline, we still struggle in our capacity to conceptualize, measure, and evidence the related impact mechanisms. Music characteristically functions in a holistic manner, at emotional, bodily, and situated levels of experience. Such aspects are integral to the state-of-the-art conceptions of human cognition, but they can be difficult to objectively measure. In this keynote address, I will introduce some of our recent studies from the field of music and emotion as examples of how we have attempted to define and quantify music as a resource for human well-being.

I will conceptually ground the presentation around the Access-Awareness-Agency (AAA) model on how music can support emotional competence. Music engagement is addressed as an affordance for affective capacities – as access and awareness of emotions, as a tool for emotional self-regulation, as embodied emotional expression and interaction, and as affective agency and identity construction. The theoretical propositions are supported by empirical findings from studies that we have conducted in educational and clinical music therapy contexts as well as in my current project MUSICONNECT, which investigates youth's ability to connect with self and others in the context of everyday life. The methods we have used range from digital ethnography to computational music feature analyses, motion capture, clinical trials, and psychometric assessment.

The power of music relies on its holistic and affective character. Yet, this perhaps seemingly mysterious notion is not in contradiction with a scientific endeavor of addressing music engagement as testable, falsifiable, and evidence-based practice. On the contrary, knowledge of the emotion-related processes as measurable mechanisms of action for various outcomes can help to emphasize the very relevance of the affective levels of humanity in our society. Based on the studies I will present in this keynote, I dare to argue, when we study music, we study the critical capacities in building social sustainability in today's world.

Keywords: music, emotional competence, social sustainability, emotional awareness, emotional self-regulation

Thursday, 24 October 2024

University of Zagreb Faculty of Humanities and Social Sciences

PROGRAMME

9:15 – 10:55: **Parallel oral sessions 1 – 3**

Oral session 1 **Music therapy**

Library Conference Hall, 2nd floor

Chair: Matea Šoštarić

1. Ksenija Burić: Using improvisational music therapy as a tool to enhance self-esteem and resilience in a female adolescent with severe multiple difficulties
2. Ana Costa-París & María Peralta-Fernández: Music therapy and adolescence in educational contexts. A systematized review.
3. Aleksandra Denda: Harmonizing Wellness – Music Therapy as a Burnout Prevention Tool for Medical Personnel
4. Predrag Mitrović & Aleksandra Paladin: Music therapy in young patients with previous acute coronary syndrome; 22-year experience

Oral session 2 **Music, speech and cognition**

A229, 2nd floor

Chair: Mirjana Tonković

1. Christine Groß & Markus Christiner: Sounds of Creativity: Overlaps of language and music
2. Ryan Gray, Michael Craig, Michaela Dewar, & Alan J. Gow: Does Musical Experience Influence Executive Function Ability? A Large-Scale Empirical Study
3. Markus Christiner & Christine Groß: Music is the language the whole world understands: Individual differences in perceiving melody in unfamiliar speech
4. Jasmin Pfeifer: Vowel Perception in Congenital Amusia
5. Christine Groß, Valdis Bernhofs, Eva Möhler, Markus Christiner & Bettina Serrallach: Unveiling Auditory Evoked Processing: Bridging MEG and EEG

Oral session 3 **Music listening**

D2, ground floor

Chair: Antun Palanović

1. Suzy Miller, Emma D'Aprano, Mark Lee & Nicholas Matherne: An exploration of music and wellbeing: Basic Psychological Needs in song lyrics
2. Ina Reić Ercegovac, Snježana Dobrota & Marijo Krnić: Music Listening Functions: The Role of Personality Traits and Psychological Wellbeing
3. William Randall, Tasos Mavrolampados, Margarida Baltazar, Alessandro Ansani, & Suvi Saarikallio: Experience Sampling of Changes in Emotional State Intensity during Everyday Music Listening
4. Johanna Dasovich-Wilson, William Randall & Suvi Saarikallio: The influence of music video content on everyday listening outcomes: An ESM study
5. Sanela Nikolić & Biljana Leković: Loving and Owning: Psychological Aspects of Buying Music NFTs

Oral session 1 **Music therapy**

Library Conference Hall, 2nd floor
Chair: Matea Šoštarić

Using improvisational music therapy as a tool to enhance self-esteem and resilience in a female adolescent with severe multiple difficulties

Ksenija Burić

Catholic University of Croatia, Zagreb, Croatia

Background

Maslow's hierarchy of needs can serve as a theoretical framework for understanding how improvisational music therapy (IMT) can enhance self-esteem and resilience in a female adolescent with severe multiple difficulties (SMD). Individuals must satisfy basic needs before progressing to higher levels of psychological and self-fulfillment needs (Wigram et al., 2002). Music therapy offers a creative and holistic approach by providing opportunities for self-expression, emotional regulation, and finding the inner self (Konieczna-Nowak, 2023).

Aims

This study explores the effectiveness of IMT in enhancing self-esteem and resilience in a female adolescent with SMD. Specific objectives include providing a safe and supportive environment fostering a sense of belonging and social connection (Johnels et al, 2023), facilitating self-esteem development, and promoting resilience through IMT as a metaphor for navigating challenges and building adaptive coping skills.

Method

This case study focuses on the period of 6 months, from September 2023 to February 2024 with a young girl in individual music therapy sessions once a week for 30 minutes. At the beginning of the observation period assessment was done to identify the adolescent's strengths, challenges, and therapeutic goals. A tailored IMT program was designed based on the adolescent's needs and preferences. All the sessions were video recorded and analyzed to identify patterns and themes related to self-esteem and resilience enhancement (Spiro & Himberg, 2016).

Results

Preliminary findings indicate several positive outcomes associated with the IMT intervention such as increased self-esteem and improved resilience noticed through more confidence and empowerment in musical expression, leading to greater self-awareness and self-acceptance. Engaging in musical improvisation facilitated the expression and processing of emotions, promoting emotional resilience and well-being.

Conclusions

The findings of this study suggest that IMT as a therapeutic approach can contribute to enhancing self-esteem and resilience in female adolescents with SMD. By addressing the adolescent's basic needs for self-expression, emotional regulation and social connection, music therapy can promote holistic well-being and empower individuals to overcome challenges and thrive. Future research should continue to investigate the mechanisms underlying the therapeutic effects of music improvisation and explore its application in diverse populations and settings. Additionally, ongoing collaboration between music therapists, mental health professionals, and educators is essential to ensure the accessibility and effectiveness of music therapy interventions for adolescents facing complex difficulties.

References

Johnels, L., Vehmas, S., & Wilder, J. (2023). Musical interaction with children and young people with severe or profound intellectual and multiple disabilities: a scoping review. *International Journal of Developmental Disabilities, 69*(4), 487-504. https://doi.org/10.1080/20473869.2021.1959875

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Keywords: improvisational music therapy, resilience, self-esteem, severe multiple difficulties, video recording analysis

Music therapy and adolescence in educational contexts: A systematized review.

Ana Costa-París, María Fernández-Peralta

Universidad de Navarra, Pamplona, Spain

Background

Research on music therapy for adolescents has increased in recent decades (McFerran, 2019; Yinger & Gooding, 2014). However, it seems that this research refers mostly to clinical settings or is carried out in a health context. At the same time, in educational environments an approach to music as an instrument for personal and social well-being is now observed at ages between 12 and 18 years (Croom, 2015; Ennis & Tonkin, 2018; Welch et al., 2014).

Aims

This theoretical review aims to show the existing literature about the research on music therapy focused on the well-being of adolescents in educational contexts. In this sense, we aim to examine what studies show which needs currently arise in adolescents in music therapy.

With this objective, a systematized review has been carried out, through a main search in the Web of Science and Scopus databases. The inclusion and exclusion criteria refer to the age of the population, context of the studies, typology of musical or music therapy activities and type of documents. Only original studies that were peer-reviewed and carried out between 2014 and 2024 were included.

Main Contribution

The results show the benefits of music and music therapy activities in adolescents, outside of clinical or specific context to the treatment of a disability, and the need for more attention and intervention for the real problems in the adolescent context.

Implications

It is also shown that the research is carried out with different instruments and methodologies, being carried out by researchers who combine their academic affiliation with the music therapy practice. The studies varied in terms of sample size and the design of their interventions, producing a diversity of results that have great projection in future research. This has many implications in the field of education and in the field of personal and social well-being in general. For example, a reflection on the role of the arts in the well-being of adolescents and how to carry

out concrete actions in the educational context is necessary. Likewise, more research is needed in this field that can exhaustively evaluate these activities.

References

Croom, A. M. (2015). Music practice and participation for psychological well-being: A review of how music influences positive emotion, engagement, relationships, meaning, and accomplishment. *Musicae Scientiae 19*(1), 44-64. https://doi.org/10.1177/1029864914561709.

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Keywords: music therapy, adolescent, educational context, well-being, intervention.

Harmonizing Wellness - Music Therapy as a Burnout Prevention Tool for Medical Personnel

Aleksandra Denda

SPMMT, Serbia

Background

Music engagement is a uniquely human activity, and much research has confirmed its powerful impact on physical, social, emotional, and behavioral development. Previous studies confirmed that music engagement, which can range from active listening, and singing to music playing, has shown to enhance mood, sense of belonging, mental and physical well-being, self-awareness, and autonomy (Belfi et al., 2023; Brown et al., 2018; Cañadas-De la Fuente et al., 2015; Colin et al., 2023).

Aims

The aim of this research was to explore the effects of weekly comprehensive music therapy interventions in reducing burnout symptoms amongst hospital nursing staff in Spain over the course of four consecutive weeks.

Method

Socio-demographic data and music anamnesis questionnaires were given pre-treatment. Pre- and post-treatment Maslach Burnout Inventory (MBI) was used. Pre and post each session participants assessed their sleeping habits and energy levels, and the influence they believed music therapy sessions had in helping them cope with everyday stress. Post-treatment MT Program Evaluation questionnaire was given.

90-minute-long music therapy interventions were conducted on a weekly basis in two groups (4 sessions for each group). The long-term goals of these interventions were to use music to enhance the participants' well-being by fostering self-expression, promoting social cohesion and a sense of belonging, and providing tools for mindfulness and relaxation.

Results

Pre-treatment MBI scores (baseline) indicated medium levels of emotional exhaustion and depersonalization and a high level of personal achievement. Post-treatment results showed a decrease in emotional exhaustion and depersonalization, and a slight decrease in personal achievement. Analyzing pre- and post-session qualitative data, the most frequent pre-session emotions were tiredness, nervousness, as well as an eagerness to participate in the session and connect with colleagues, while post-session results revealed feeling serene, fulfilled, joyful and part of a team. Most participants found music therapy tools quite useful in managing their everyday stress.

Conclusions

During a 4-week music therapy program, evident reduction of emotional exhaustion and depersonalization dimensions of nursing burnouts were noted, as well as improvements in having a sense of team and enhanced levels of curiosity, aspects which were identified as agents of burnout reduction. Future studies on this topic could benefit from ensuring a more diverse participant pool, number of participants and a combination of objective and subjective assessments, thereby enhancing the validity of the research.

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Keywords: burnout, nursing staff, wellbeing, music therapy, music engagement

Music therapy in young patients with previous acute coronary syndrome: A 22-year experience

Predrag Mitrovic[1,2], Aleksandra Paladin[3,4]

[1]The Cardiology Clinic, University Clinical Center of Serbia, Belgrade, Serbia. [2]Faculty of Medicine, University of Belgrade, Belgrade, Serbia. [3]Faculty of Contemporary Arts, Belgrade, Serbia. [4]Serbian National Broadcasting Agency, Belgrade, Serbia

Background

A lot of people with some kind of illness respond to music with mediation by illness (Bradt et al., 2013). Because of that, it is very important to moderate the musical parameters restricted by the type of disease (the frequency of the melody, tempo, tonality) (Gomez & Danuser, 2004; Koelsch & Lutz, 2013). It is well known that young patients after previous acute coronary syndrome (ACS) have an uncertain prognosis (White, 1999).

Aims

This study aimed to evaluate the effectiveness of music therapy for the reduction of new coronary events (NCE) in young patients with previous ACS.

Method

All patients under 40 years of age with previous ACS (*N* = 524) were divided into a Group with music therapy (MT Group; *n* = 262) and a control group without music therapy (non-MT Group; *n* = 262). Patients in MT Group listened to sedative music without emphasized rhythm, with a 60-80 beats/minute rate, and instrumental music with a sustained melody. The protocol for listening to music was to sit on a chair and use soft open-air headphones and CD player, with closed eyes. Patients listened to music for 30 minutes twice a day. The music was selected for each patient, specifically. The music genre was defined after the interview with a patient. Baseline data collected included age, traditional coronary risk factors (RF) (e.g., smoking, diabetes mellitus, hyperlipidemia, obesity, and family history), number of RF and cardiovascular disease (Mitrovic et al., 2014).

Results

Both groups were similar in baselines, post-ACS characteristics, and post-ACS medical therapy. Comparing parameters of MT Group and non-MT Group of patients in 22-years follow-up period, MT Group had lower anxiety score, with statistically significant reduction in systolic blood pressure, diastolic blood pressure, heart rate, angina, reinfarction and sudden deaths.

Conclusions

This study provides support for the use of musical therapy in young patients with previous ACS to reduce blood pressure, heart rate, and NCE expression. These effects of music therapy are probably due to a decrease in sympathetic nervous system activity.

References

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Keywords: experience, young patients, music therapy, acute coronary syndrome, prognosis

Oral session 2 **Music, speech and cognition**

A229, 2nd floor
Chair: Mirjana Tonković

Sounds of Creativity: Overlaps of language and music

Christine Groß[1], Markus Christiner[2,1,3]

[1]Jazeps Vitols Latvian Academy of Music, Riga, Latvia. [2]Section Music, Brain and Cognition, Department of Psychology, Graz, Austria. [3]Austrian Academy of Sciences, Vienna, Austria

Background

Creativity is an important skill for solving problems. There is a lot of research that shows that musical engagement can enhance creative thinking, especially when individuals need to solve problems. Thus, research has shown that listening to music improves performance in problem-solving situations, broadens thought processes (Chan et al. 2013) and facilitates overcoming mental blocks which in turn can enhance idea generation (Boccia et al. 2014). Another advantage of musical engagement is that it can significantly facilitate (foreign) language acquisition processes. Therefore, it is worth considering whether creativity fostered by musical engagement also extends to language acquisition processes.

Aims

In this study we wanted to assess creativity in problem-solving and its relationship to both music and language. Additionally, we investigated the ability to perceive melodic elements in foreign languages.

Method

We recruited 150 participants for this study and developed a comprehensive scale assessing creativity in problem-solving. To assess individuals' creativity in problem-solving, we developed a novel 14-item questionnaire (Christiner et al., 2021; Christiner et al., 2023). In addition, we used music and language measures as well as newly developed multi-item scales concepts that ask for their ability to silently hearing foreign languages later (imaginary language retention skills), perception of melodic elements in foreign languages, memory for melodies, music exposure, music practice and singing behavior from childhood onwards. The language assessments included phonetic language perception and pronunciation tasks, as well as musical ability measures.

Results

Creativity in problem solving was associated with imaginary language retention skills, perceptions of musical elements in foreign languages, memory for melodies, music exposure, singing behavior from childhood onwards and to the musical scene analysis. Regression analysis in which creativity was the dependent variable revealed that 36 percent of the variance could be explained by four predictors: imaginary language retention skills, music exposure, musical scene analysis and participants' perceptions of musical elements in foreign languages.

Conclusions

Our findings suggest that creativity in problem-solving is related to musical capacity and to language related variables. However, we also detected that creativity is associated with perceptions of musical elements in foreign languages. We suggest that musical capacity enhances being able to perceive languages more melodic like, or that musical capacity sets a creative process in motion where melodic aspects in language come more to the foreground.

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Keywords: creativity, musical ability, melodic perception, language ability

Does Musical Experience Influence Executive Function Ability? A Large-Scale Empirical Study

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Background

Musical training is a complex activity that integrates motor, sensory and cognitive functions (Olszewska et al., 2021). Contemporary research demonstrates that engagement in this activity may benefit higher-order cognitive functions, such as executive function (EF) and processing speed (Yurgil et al., 2020), including in older populations (Roman-Caballero et al., 2018). However, grouping criteria for musicians in cross-sectional work often miss potentially important nuances in participants' musical experience, so it remains unclear which aspects of musical experience are associated with cognitive abilities. There is therefore increased need for more comprehensive musical experience assessments.

Aims

The current study examined whether and how musical experience is associated with EF ability in a diverse age sample, while taking into account participants' varying degrees of musical experience.

Method

Healthy adults aged between 18-90 years (N = 1516) took part in an online study. Participants provided demographic information including their gender, age, and total years of education before completing the ELMEQ (Okely et al., 2021). EF was assessed across several domains (including working memory, inhibition and cognitive flexibility) through established tasks: Digit Span, N-Back, Flanker, Simon, and Set-Shifting.

Results

Associations between musical experience and EF were assessed with SEM. Cognitive measures were used to construct a single cognitive domain, EF. Musical experience was then included in the model as a continuous latent variable, comprised of number of instruments played, years of playing, years of formal training, hours per week during regular playing, and self-reported highest level achieved. Age, gender, and years of education were included

as covariates. There was a positive relationship between musical experience and EF performance. Age and years of education were also significantly related to EF.

Conclusions

Results suggest that musical experience may be associated with benefits to EF, which is supported by other research, in which musicians commonly perform better than non-musicians in measures of this domain (Roman-Caballero et al., 2018). The current findings build on existing literature by utilizing a comprehensive musical experience questionnaire. This allowed for the extraction of a robust musical experience variable, which takes into account the varying degrees of musical experience within the sample. As EF is critical for managing daily life activities, the positive relationship between musical experience and EF here suggests that regular musical practice could be a viable strategy for maintaining cognitive function in older age.

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Keywords: musical experience, cognitive health, executive function, ELMEQ, aging

”Music is the language the whole world understands": Individual differences in perceiving melody in unfamiliar speech

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Background

Positive transfer from music to language has been of considerable interest in various domains. Their findings have revealed that musical abilities have positive effects on diverse language functions. In previous research we provided evidence that individuals who perceive new natural languages as more melodic and pleasant-sounding also exhibit significantly better performance in pronouncing foreign language languages compared to those who recognize lower melodic elements in foreign languages (Christiner et al., 2021).

Aims

The current study aimed to uncover the factors influencing varying perceptions of how melodious the languages sound. Thus, we devised a series of comprehensive scale concepts aimed at exploring not only the melodic perception of languages, but also various facets of musical ability. In this study our goal is to uncover the musical capacities that may shape why some languages are perceived as more melodious than others.

Method

We recruited 110 adults who participated in our study. They were instructed to answer several statements which focus on the extent to which individuals perceive substantial or minimal presence of melodic elements in foreign languages. In addition, we used newly developed scales on musical ability and measures of participants' ability to remember melodies in songs, their actual singing behavior, singing behavior during childhood, and musical capacity (Christiner et al. 2022). Furthermore, the participants were also tested for their musical ability with singing tasks (Christiner et al. 2022), and subtests from the Longgold testing battery, including the mistuning perception and the melody discrimination test (Larrouy-Maestri et al. 2019). Furthermore, to assess individual differences in language ability, we employed tasks that included assessing their reading ability and their ability to perceive unfamiliar languages (both tone and non-tone languages) (Christiner et al. 2023).

Results

Ability to perceive melodic elements in foreign languages was associated with song memory ability, singing behavior, music exposure, melody discrimination, and mistuning perception ability. In addition, the ability to perceive melodic elements in foreign languages was also associated with the ability to discriminate tone languages, but not with non-tone language ability.

Conclusions

The findings of this study represent a new dimension on the overlaps between music and languages and suggest that individuals with higher musical ability and training seem to recognize more melodic elements in foreign languages. This observation implies a fundamental connection between musical proficiency/ability and heightened phonetic abilities, unveiling a previously unexplored dimension in the relationship between music and language perception.

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Keywords: unfamiliar language, musicality, melody of speech, phonetic ability

Vowel Perception in Congenital Amusia

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Background

Congenital amusia is a disorder that negatively influences pitch and rhythm perception (Peretz et al., 2002) and it is not caused by a hearing deficiency or brain damage. While congenital amusia had long been reported to affect

only the musical domain (Peretz et al., 2002), several studies have shown that amusics also have impaired perception of intonation (Patel et al., 2008) and linguistic tones (Tillmann et al., 2011).

Aims

In the present study we tested whether congenital amusia also has an influence on linguistically relevant cues other than pitch by investigating the discrimination of German front high vowels. We assessed amusics' electrophysiological responses, more specifically the Mismatch negativity (MMN) (Näätänen, 2001).

Method

We tested 11 congenital amusics diagnosed with the MBEA and 11 matched controls. All participants were right-handed, had normal hearing and had German as a native language. Our stimuli were isolated synthetic vowels varying in either durational or spectral properties. We decided to use mid vowels to avoid periphery effects (Polka & Bohn, 2003), and to utilize vowels that are close to each other in their height and front-back dimension in the vowel space, but that differ in quality and/or quantity. We assessed amusics' electrophysiological responses, more specifically the MMN with a multi-deviant oddball paradigm. The inter-stimulus interval was varied randomly between 400 ms and 600 ms to avoid entrainment effects

Results

For the MMN data we first investigated the auditory MMN by subtracting the average ERP of the standard from each of the three deviants within a block. We used a linear mixed model. We found significant main effects for group: $t(323.7) = -2.45$, $p = 0.024$ with amusics ($M = -2.68$) overall having a smaller MMN than controls ($M = -3.37$). In addition, we found a main effect for cue $t(2351.8) = -6.05$, $p < 0.001$. Durational differences were harder to detect.

Conclusions

Our study shows that congenital amusia does not only affect the perception of pitch in music and language but also the perception of vowel contrasts, therefore having more far-reaching consequences for speech perception than previously assumed. We showed differences in the MMN, reflecting differences in early auditory change detection.

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Keywords: congenital amusia, vowel perception, EEG, duration, spectral cues

Unveiling Auditory Evoked Processing: Bridging MEG and EEG

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Background

Auditory perception plays a central role in human development and communication processes and contributes significantly to cognitive and social functions. In previous research, we used a MEG system to record auditory evoked fields (AEFs) in response to different instrumental tones and observed activation of the auditory cortex in response to auditory stimuli in different participants (Groß et al., 2022; Serrallach et al., 2016). However, the use of MEG equipment is limited to specialized research facilities and very expensive. EEG is emerging as a suitable alternative for future efforts to conduct larger, controlled and randomized studies to validate and further substantiate these findings.

Aims

In this pilot study, adapted protocols were developed with the aim to integrate EEG as an easily accessible and cost-effective alternative to MEG. We speculated that if MEG approaches are also applicable for the EEG, we would get similar mean values for auditory evoked potentials.

Method

To uncover whether MEG approaches are also applicable for EEG, we used the adapted EEG protocol and tested the response to different instrumental tones on adults (N=10). We then compared the means and standard errors of the auditory evoked potentials (P1, N1, P2) of our participants with those reported in previously published MEG research (Bücher et al. 2023).

Results

The mean values and standard errors of the newly adapted EEG protocols were similar to those reported in MEG studies for the right and left P1 and N1 latency. Although the mean values of the right and left P2 latency were similar to those reported in MEG studies, in our EEG study the standard error was slightly higher. However, the differences in the standard errors of the P2 responses in the EEG study could also be explained by the considerably smaller number of participants in our sample.

Conclusions

Our study is, to the best of our knowledge one of the first attempts of using EEG to replicate MEG approaches and suggests that methodologies previously employed in MEG studies can also be successfully applied to EEG measurements. EEG is more accessible and less expensive, easier to test larger samples, thus increasing the reliability of the results. The greater accessibility makes it possible to use EEG to further deepen our understanding of auditory perception in different populations and conditions which may help to develop tailored preventions or interventions in the future.

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Keywords: auditory-evoked potentials; auditory perception; electroencephalogram

Oral session 3 **Music listening**

D2, ground floor
Chair: Antun Palanović

An exploration of music and wellbeing: Exploring themes of Basic Psychological Needs in song lyrics.

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Background

Music plays a vital role in our lives, providing enjoyment and significance across all ages (Bonneville-Roussy et al., 2013). Research suggests that listening to music increases positive affect and decreases negative affect (De La Torre Luque et al., 2017; Groarke & Hogan, 2019; Saarikallio, 2008). However, the specific mechanisms through which music improves wellbeing requires further understanding.

Aims

The study aimed to introduce a novel framework that explored whether individuals may be inclined to listen to music that contains lyrics that reflect their basic psychological needs (BPN; Deci & Ryan, 2000). The investigation sought to understand whether popular music in Australia over the last decade contained themes linked to satisfaction or frustration of BPN.

Method

Four coders, possessing expertise in Self Determination Theory and music, conducted an extensive content analysis (line by line, verse, overall) of popular songs from the past decade in Australia. The objective was to identify prevalent themes related to BPN satisfaction or frustration within the lyrics of these songs.

Results

The findings of this study suggests that all of the examined songs contained themes corresponding to predetermined BPN categories. For example, Katy Perry's 2013 'Roar' was assessed as containing an overall theme of autonomy satisfaction. 'Shape of You' by Ed Sheeran in 2017 represented an overall theme of relatedness satisfaction. These findings suggest music lyrics contain themes of BPN states that may be important for music listeners' engagement with popular songs.

Conclusions

By identifying themes of BPN within popular song lyrics, this study sheds light on the potential role of music in reflecting individuals' satisfaction and frustration of these needs. The main contribution of this study lies in the introduction of a potential novel framework connecting music with BPN, contributing to the growing body of knowledge in the field of music and well-being.

The identification of BPN themes in popular songs suggests that music may serve as a medium for individuals to improve wellbeing through engagement with these need states. This study acknowledges the preliminary nature of its findings and emphasizes the importance of future research to validate and expand upon the proposed framework.

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Keywords: music listening, wellbeing, basic psychological needs, song lyrics, popular music.

Music Listening Functions: The Role of Personality Traits and Psychological Wellbeing

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Background

Listening to music is one of the most important leisure activities of adolescents and the psychological functions of music listening include cognitive, emotional and social functions. The results of numerous studies confirm that listeners' musical preferences and values are fundamental predictors of the functions of music listening in individuals' lives (Getz et al., 2010).

Aims

This paper explores the contribution of two personality traits and psychological wellbeing to the explanation of the functions of music listening. The research was conducted through an online survey on a sample of 1206 participants, students from Croatia, Serbia, Bosnia and Herzegovina, Montenegro and singers in choirs and vocal band (klapa).

Method

For the purposes of the research, a questionnaire was constructed consisting of questions that collected sociodemographic data, two subscales (emotional stability and intellect) of the International Personality Item Pool (Goldberg, 2001), a short version of the Psychological Wellbeing Scale (Ryff & Keyes, 1995), and a shortened version of the Adaptive Functions of Music Listening Scale (Groarke & Hogan, 2018).

Results

Intellect is significantly related to all factors of psychological wellbeing and to all functions of music listening, while emotional stability is related to all factors of psychological wellbeing and to some functions of music listening. Significant correlations were also found between several aspects of psychological wellbeing and music listening functions. The results of hierarchical regression analyses showed that the selected predictors can predict music listening functions. Women, individuals with higher results on intellect and greater psychological well-being are more likely to listen to music for the purpose of regulating stress, anxiety, and anger. Younger individuals,

women, less emotionally stable individuals with higher intellect and less psychological well-being are more likely to use music for the purpose of rumination. Musicians and individuals of higher intellect, use music more for awe and appreciation purposes, while women, less emotionally stable individuals and those of higher intellect are more likely to listen to music for the purpose of reminiscence. Non-musicians, women, less stable individuals and individuals with a higher intellect more often use music for strong emotional experiences, while identity can be predicted on the basis of a higher intellect and professional practice of music.

Conclusions

Different aspects of psychological wellbeing contribute in different ways to most functions of music listening.

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Keywords: functions of music listening, personality traits, psychological wellbeing, students, singers.

Experience Sampling of changes in Emotional State Intensity during Everyday Music Listening

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Background

Personal music listening is ubiquitous in everyday life, and can serve as a powerful resource for regulating emotional states. With music streaming apps, vast libraries of music are available anywhere and at any time, allowing for deliberate self-regulation across the range of everyday listening contexts. Despite this, little is known about how emotional states are changed - either enhanced or diminished - during listening experiences on mobile phones.

Aims

The current study aimed to determine the situational, individual, and musical variables that predict changes in discrete emotional state intensity during everyday music listening.

Method

The mobile experience sampling app MuPsych (Randall & Rickard, 2013) was used to capture natural listening experiences as they occurred in the daily lives of participants (N = 1231). Participants selected their current emotional state at the start of listening, and rated the intensity of this state at three time points during the listening experience. The app also collected self-report data on listening context, listener variables, and reasons

for listening, which were combined with more objective music features. Separate multilevel linear regression analyses were performed on each of the ten most frequent emotional states, to determine the predictors of change in intensity. Following this, all 30 emotion states were clustered by listener intention, and separate regression analyses were performed on these clusters.

Results

Results revealed the strongest significant effects as decreases in the negatively-valenced states anxious, bored, and tired, and weaker yet significant increases in the positive states confident, content, happy, and motivated. Each of these significant changes in intensity occurred within the first five minutes of music listening. Generally, more positively valenced music significantly enhanced positive states, while paying attention to the music significantly diminished negative states. For example, when listeners were in an anxious state, this state anxiety was significantly diminished by both more positively valenced music and higher levels of attention, but was enhanced by more energetic music.

Conclusions

These results show that music can be effective in diminishing the intensity of undesirable, negative states, which supports everyday music listening as a useful resource for self-regulation. Changes in intensity for each state can be predicted by a combination of contextual and individual variables, along with objective music features. Findings are discussed in relation to the field of music recommenders, which would benefit greatly from a psychological understanding of how everyday music listening influences discrete emotional states.

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Keywords: music emotions, everyday listening, experience sampling

The influence of music video content on everyday listening outcomes: An ESM study

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Background

Annual reports on global music consumption habits have shown engaging with music multimedia is a popular activity facilitated through platforms like TikTok and YouTube. A study by Dasovich-Wilson et al. (2024) suggests music videos influence music perception by affecting the mechanisms underlying music-evoked affect, both during the initial experience and in subsequent listens. The current study explores this phenomenon using experience sampling method (ESM) in order to establish how exposure to music video content influences music evoked affect in everyday listening. Whether individual differences in healthy/unhealthy listening behaviors moderate these effects is explored.

Aims

The study explores how music video exposure influences emotional reactions *to* and enjoyment *of* the song in subsequent listens. It investigates how music video content influenced mechanisms for music evoked affect related to 1) *visual mental imagery* 2) *interpretation* of the music's meaning, and 3) the song's *personal significance*.

Whether individual differences in listening behaviors moderate the effects of these three mechanism variables is explored.

Method

The study uses the MuPsych ESM application for smartphones to collect data during participants' everyday listening experiences. MuPsych prompts participants to answer questions about the music and affective state at the start of listening and again at five-minutes. If they had seen the music video for a song they just heard, they indicated how much the music video influenced their enjoyment and emotional reactions to the music and whether the content of the video affected the three mechanisms of interest. Participants filled out the Healthy-Unhealthy Music Scale (HUMS; Saarikallio et al., 2015) directly on the app. Linear Mixed Models (LMMs) were performed, incorporating participants as random intercepts. Whether individual differences in healthy and unhealthy listening moderate the influence of these three mechanisms on enjoyment and emotional reactions is explored. A total of 160 music video experience reports were obtained from 21 participants between 18 and 41-years old (*M*=21.9, *SD*=4.91) .

Results

The effect of Interpretation on emotional reaction was significant at all levels of HUMS-Healthy but strongest for individuals with higher Healthy scores. Personal significance had a significant effect on Enjoyment: this effect was strongest for individuals with below average HUMS-Healthy scores.

Conclusions

These findings suggest music video content affects mechanisms related to interpretation of meaning and personal significance. The effects are moderated by the individual's use of music to support emotional wellbeing. While participants were not exposed to a music video as part of this study, these results provide novel insight into the carry-over effects imposed by visual information on subsequent music perception by exploring these effects in an ecologically valid context. These findings provide insight into the relationship between everyday listening for health and wellbeing purposes and the impact of visual content on personal music listening outcomes.

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Keywords: audio-visual, emotion, experience sampling method, music videos, music perception, mechanisms

Loving and Owning: Psychological Aspects of Buying Music NFTs

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Background

Music and the market are inseparable categories that are in a fluid relationship, the dynamics of which are particularly intensified by the emergence of new technologies for distribution and sales. The latest innovation in the digital music market is the non-fungible token (NFT). As a unique data set, this digital certificate guarantees ownership of a specific digital music product. In addition to their collector potential, NFTs also offer the

opportunity to generate higher profits, as in the case of the world's first tokenized album *Ultraviolet* by 3LAU, which was sold for over 11.7 million dollars via an online auction in 2021 (Casey, 2023).

Aims

The main objective of this research is to explore the possible psychological aspects of trading in the music NFT ecosystem, with a particular focus on the psychological background of buying NFTs. As the academic literature addressing the psychological aspect of the NFT market is limited (Sestino et al., 2022), we rely on psychological ownership theory to identify the underlying motives behind the need to buy and own music NFTs (Jussila et. al., 2015; Sinclair and Tinson, 2017).

Main Contribution

We contribute to a better understanding of the NFT phenomenon for musicians as it combines the new technology of blockchain and the economic logic of cryptocurrencies with traditional artistic values and psychological aspects of consumer behavior. Although NFT is functionalized as a new technology and a new business model, the market is driven by long-term existing and intertwined social and psychological relationships. Among other things, the motive of supporting an independent artist is finding an increasingly important place in the NFT market.

Implications

Given the relative newness of NFTs in the music industry, the academic literature focusing specifically on music NFTs is still nascent (Casey, 2023; Esmaeili, 2023). Understanding the phenomenon of music NFT purchasing from a psychological perspective can help individual musicians better understand consumer preferences and habits, which serve as key factors in developing NFT potential into a sustainable digital format for music revenue.

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Keywords: music, NFT (non-fungible token), psychological ownership theory, buying artworks.

11:15 – 12:55: **Parallel oral sessions 4 – 6**

PROGRAMME

Oral session 4 **Music and health issues**

Library Conference Hall, 2nd floor

Chair: Brigita Vilč

1. Sara Savović & Milena Petrović: The Effect of Music on Emotional and Communication Reactions of the Preschool Child with Autism Spectrum Disorder (ASD)
2. Maja Mustapić, Brigita Vilč & Karolina Šantl Zupan: Students with ADHD in Flute Classrooms
3. Lisa Schön, Nils F. Töpfer, Elisabeth Jakob, Mareike Hillebrand, Jo Reichertz, Doreen Rother, Lisette Weise & Gabriele Wilz: Sounds of Difference: A Typology of Reactions of People with Dementia to Individualized Music in the Presence of a Monitoring Person
4. Jasmin Pfeifer: Spatial Perception in Congenital Amusia Revisited

Oral session 5 **Music and children**

D2, ground floor

Chair: Blaženka Bačlija Sušić

1. Mário Moniz: The relationship between phonological awareness and the ability to echo musical rhythmic patterns in Portuguese preschool children
2. Caroline Owen & Andrea Schiavio, A.: Sound and sense: A longitudinal web-based investigation of children's subjective responses to music
3. Blaženka Bačlija Sušić & Sanja Tatalović Vorkapić: Analyzing effects of musical activities on children's social-emotional well-being and resilience
4. Ana Čorić: Radiophonic Art for Children: Exploring Riddles of Presentation and Participation through a Multimodal Approach
5. Katarina Kompan Erzar & Saška Rakef Perko: Relational art as a way of creating music and sound works for babies and infants

Oral session 6 **Music origins**

A229, 2nd floor

Chair: Richard Parncutt

1. Daniela Lenti Boero & Laura Habegger: The natural soundscape as musical environment: an evolutionary psychology perspective and some possible music education related ideas. A pilot study
2. Piotr Podlipniak: Neural repurposing as a driving force in the Baldwinian evolution of musicality
3. Richard Parncutt: Does music have a prenatal origin? The relevance of recent empirical findings in music psychology
4. Helena Dukić & Asim Kurjak: Making the fetus dance: Usage of music to enhance fetal movement during Kurjak Antenatal Neurodevelopment Test (KANET), proposal of methodology

Oral session 4 **Music and health issues**

Library Conference Hall, 2nd floor
Chair: Brigita Vilč

The Effect of Music on Emotional and Communication Reactions of the Preschool Child with Autism Spectrum Disorder (ASD)

Sara Savović, Milena Petrović

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Background

The review of related literature shows that the number of children diagnosed with ASD has steadily increased over the last few years (Maenner et al., 2023). Among the many different treatments, music interventions are a potential alternative for children with ASD. The findings suggest the effectiveness of music interventions in improving social interaction, enhancing emotions, and developing motivation in children with ASD (Ke et al., 2022; Kim et al., 2009). Studies indicate that the use of infant-directed singing is more engaging than infant-directed speech (Simpson et al., 2013) and that Orff music therapy helps to reduce the repetitive behavior in autistic children (Dezfoolian et al., 2013).

Aims

The main aims are to determine: 1) the emotional and communication reactions of one preschool child with ASD during different musical activities; 2) the frequency of reactions to the same music activities; and 3) whether repeating the same order of these activities affects the child's reactions over the time of 4 weeks.

Method

Musical activities were conducted once a week four times during one month. Each lasted 30 minutes and their content was always identical – singing, listening, and watching the video. To collect data we used the *interview for parents* and to measure the child's reactions we gave the *observation protocol* to 3 independent specialists to evaluate: the frequency (initiation, reaction to initiation, lack of reaction) and both frequency and duration (joy, eye contact, involuntary movements).

Results

The findings show the child expresses: 1. physical reaction to joy or excitement, such as hand flapping; makes eye contact and better verbal communication; 2. the same reaction to music activities, only their intensity being increased over time; 3. positive reaction to the same order of music activities („yes, please"), initiates the repetition of favorite content („again, again") and protests against content he doesn't like („no, thank you").

Conclusions

The results confirmed the generally positive reactions of a preschool child with ASD to music activities. They can be considered as guidelines for further research on this and similar topics.

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Keywords: music, emotions, communication, preschool child, autism

Students with ADHD in Flute Classrooms

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Background

Attention-Deficit/Hyperactivity Disorder (ADHD) is characterized by persistent patterns of inattention and/or hyperactivity-impulsivity that interfere with functioning or development (American Psychiatric Association, 2013). Research in Croatia reveals deficiencies in professional support and teacher preparedness in music education, necessitating enhanced formal education, professional support, and professional associates in music schools (Sokol, 2019; Tumir, 2020). While musical experiences are rich in emotional, sensorimotor, cognitive, and social aspects, research on music education's effects on children with ADHD in Croatia is scarce.

Aims

This study examines how Croatian flute teachers in elementary and high music schools teach students with developmental difficulties and ADHD, exploring their adaptation methods, teaching methodologies, and professional support networks. It evaluates their formal and informal training in managing ADHD and aims to recommend improvements for music education programs to better support students with ADHD.

Method

The research conducted an online survey among Croatian flute teachers, covering demographics, attitudes towards teaching children with developmental difficulties and ADHD, and self-assessment of competencies in working with ADHD children.

Results

The study, involving 32 female flute teachers aged 20 to 59, revealed that 62.5% had experience teaching students with developmental difficulties, and 46.9% had taught students with ADHD. A significant majority (78.1%) had not received formal education on developmental difficulties, indicating a critical need for better integration of this topic into pedagogical curricula to ensure thorough and comprehensive education in this field. Furthermore, respondents clearly expressed the necessity for understanding the development and characteristics

of children with developmental difficulties, as well as adapting teaching methods to accommodate their needs. Professional support and collaboration with parents were also highlighted as crucial factors by the respondents. Additionally, most teachers noted flute playing enhances focus and attention, and believe it reduces hyperactivity symptoms in ADHD students.

Conclusions

This study provides a significant contribution to understanding and improving music education for students with developmental difficulties, particularly those with ADHD. It identifies key challenges such as insufficient formal education and support for teachers, and inflexible curricula, hindering inclusive music education. Despite feeling underprepared, teachers creatively adapt to provide quality education, noting flute playing enhances focus, concentration, and confidence in ADHD students, and alleviating symptoms of hyperactivity. Addressing these needs requires enhancing teacher education, increasing professional support, and developing flexible curricula. Collaboration with parents is crucial for implementing individualized and inclusive approaches, ensuring comprehensive music education. Further research and support are essential for fostering inclusive practices and supportive environments in music education.

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Keywords: ADHD, flute teachers, music education, inclusive education

Sounds of Difference: A Typology of Reactions of People with Dementia to Individualized Music in the Presence of a Monitoring Person

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Background

Despite promising effects of individualized music listening (IML) for people with dementia (PwD) (Gaviola et al., 2020; McCreedy et al., 2019; Sittler et al., 2021), the individualized nature and heterogeneity of reactions to IML remain underexplored. This variability of reactions might not be accurately captured by quantitative research alone (Garrido et al., 2017). The individuality of reactions to IML among PwD highlights the need to derive a typology to categorize these diverse reactions.

Aims

We aimed to develop an empirically derived typology of directly observed reactions of people with dementia to IML and propose recommendations for tailoring the intervention to the respective types.

Method

The data for the present investigation were collected as part of a randomized controlled trial in which the effects of IML on PwDin institutional care were evaluated (for the study protocol, see Weise et al., 2018). An ideal-type analysis was conducted on 108 video recordings of 45 people with mainly severe dementia (78% female, mean age of 83.02 years, all white participants) listening to recorded individualized music.

Results

The analysis yielded 10 types of reactions ("expressing and sharing joy", "self-disclosure stimulated by music", "concentrated, absorbed listening", "blissful enjoyment", "experience of the music as bittersweet", "sharing memories", "releasing tension", "tensing up and rejecting", "predominant search for social exchange", "no interpretable reaction") and 3 dimensions ("valence" from negative to positive, "arousal" from calm to activated, "communicative activity" from defensive/ resistant to proactive), resulting in a three-dimensional coordinate system, providing a holistic representation and facilitating a systematic contrast of identified reaction types to IML.

Conclusions

Our findings suggest that the benefits of IML can be increased by tailoring the setup of the intervention and the behavior of the monitoring person to the respective type.

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Keywords: cognitive impairment; music medicine; qualitative analysis; ideal-type analysis; video analysis

Spatial Perception in Congenital Amusia Revisited

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Background

It is still under discussion whether pitch processing and spatial processing share a common representational framework. If pitch and spatial processing rely at least partly on shared processes, then spatial processing deficits can be expected in congenital amusia. However, there are differing findings regarding this matter. Douglas & Bilkey (2007) found a connection between spatial processing difficulties in a sample of 8 amusics using a mental rotation task. Tillmann et al. (2010) tested amusics' spatial abilities with two different tasks finding no deficit in spatial processing in amusia. Williamson et al. (2011) also found no difference in accuracy between amusics and controls on the Mental Rotation task and two further tasks.

Aims

While the memory aspect of spatial processing seems to be intact in amusia (Williamson et al. 2011), different components of spatial abilities, such as spatial orientation or perspective taking are yet unexplored in amusia. We therefore conducted two tests assessing different aspects of spatial rotation abilities in amusics.

Method

We administered the Object Perspective Taking Test (Hegarty & Waller, 2004) measuring perspective taking abilities, and the Santa Barbara Solids Test (Cohen & Hegarty, 2012) assessing mental rotation and the ability to identify the two-dimensional cross section of a three-dimensional geometric shape. These two tests were chosen as they differentiate between spatial orientation abilities and spatial visualization abilities. We first administered the test to a dizygotic twin pair, of which one twin is amusic and the other one is not. In addition, we have tested seven further amusics and ten controls so far but testing is still ongoing.

Results

The twins performed differently on one of the visual tasks, with the non-amusic twin (83% correct) outperforming the amusic twin (20% correct). The results of both spatial abilities tests taken together indicate that the amusic twin can perform egocentric spatial transformations but struggles with object-based spatial transformations that were required of her, with which her sister had no difficulties. This pattern seems to hold for the other amusics as well.

Conclusions

This study shows that at least this one amusic has impaired spatial visualization abilities with intact spatial orientation abilities. This warrants further scrutiny of amusics' spatial abilities and a fractionating of their skills in this regard.

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Keywords: congenital amusia, spatial processing, pitch processing

Oral session 5 **Music and children**

D2, ground floor
Chair: Blaženka Bačlija Sušić

The Relationship between phonological awareness and the ability to echo musical rhythmic patterns in Portuguese preschool children

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Background

Research indicates that participation in music classes promotes the development of phonological awareness (Vidal et al., 2020) and that rhythmic skills are related to language skills (Swaminathan & Schellenberg, 2020). The relationship between the ability to echo musical rhythmic patterns (Wolf, 2003) and phonological awareness needs further investigation. The theoretical framework for this study draws on the OPERA Hypothesis (Patel, 2011), which proposes that music training positively affects language skills, and the Temporal Sampling Framework (Goswami, 2011), which suggests that rhythmic skills are related to speech processing.

Aims

This study aims to investigate the influence of participation in music classes on the development of phonological awareness and its relationship with the ability to echo musical rhythmic patterns in Portuguese preschool children from the Azores archipelago, particularly those from disadvantaged socio-economic backgrounds.

Method

This longitudinal study randomly divides fifty-one 4- to 6-year-old children into two groups. Measures of phonological awareness using ConF.IRA test (Vidal et al., 2020) and echo musical rhythmic patterns test (designed by the researcher) will be administered before and after 5-month music classes (experimental group) and dance classes (control group). Non-verbal intelligence was monitored using WPPSI-II before intervention.

Ethical concerns include obtaining permission to undertake the research from the Government, collecting informed consent from children's parents, securing data storage, and guaranteeing anonymity. Participants can withdraw from the study at any time.

Results

The research is ongoing, and data from the pre-intervention assessment of the phonological awareness test, echo musical rhythmic patterns test and non-verbal intelligence were already collected.

Conclusions

This study will likely initiate a public debate regarding the importance of music classes in preschool education to address the prevalent issue of school failure that is rife in this region of Portugal and thereby promote a possible change in the preschool curriculum.

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Keywords: music classes, phonological awareness, rhythmic skills, preschool children

Sound and sense: A longitudinal web-based investigation of children's subjective responses to music

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Background

Our research is situated in the context of limited empirical investigation into young children's lived experiences with music. Of note is Herbert and Dibben's (2018) focus on the responses of older children and adolescents (ages 10-18) and earlier interest in children's musical or aesthetic awareness and their ability to recognize basic emotions (such as happiness, sadness and fear) purportedly expressed by music. In a preliminary interview study, Owen and colleagues (2024) found that children as young as five years described music-induced experiences including visceral sensations, imagined narratives and scenarios, revealing a similar variety of responses to those reported by adults (e.g., McAuley et al., 2021).

Aims

The present study aims to reveal insight into how subjective responses to music evolve developmentally by examining verbal responses that emerge spontaneously in children aged between five and eleven years.

Method

The longitudinal study is a series of web-based listening experiments presented to participants biannually for three years. Participants are invited to help a fictional alien cartoon character learn about what music means to Earthlings by giving free descriptions of experiences induced by seven musical extracts, each experiment featuring different musical genres. Participants are asked 1) *How does this music make you feel?* and 2) *Does this music make you think of or imagine anything?* Recruitment has been carried out via email and social media channels.

Results

Preliminary results from a qualitative analysis indicate strong similarities between what music makes children feel and imagine. Variability in how clearly individuals distinguish between what they feel, imagine, or perceive appears

not to be age-dependent, lending support to the theory of a complex spectrum of experience from perception to feeling (e.g., Gabrielsson, 2002).

Conclusions

Insight into young children's lived experiences with music contributes a new perspective to the growing body of research interested in the bio-cultural evolution of musicality – the human capacity for engaging with and appreciating music (e.g., Tomlinson, 2015). A greater understanding of how music-induced feelings emerge developmentally may also be of value in the fields of music therapy and education.

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Keywords: subjective responses to music, children, narrative, visual imagery, evolution of musicality.

Analyzing effects of musical activities on children's social-emotional well-being and resilience

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Background

Previous research suggests that incorporating musical activities in early childhood education (ECE) settings improves children's socio-emotional competencies and fosters stronger group cohesion (Bačlija Sušić & Buerger Petrović, 2023). This finding is crucial, as higher socio-emotional competencies in children correlates with improved overall well-being, especially in social-emotional domains (e.g. Tatalović Vorkapić, 2021). Therefore, the integration of musical activities into the ECE curriculum emerges as a key area for enhancing the competencies of educators.

Aims

The study aimed to analyze possible positive changes in preschool children's socio-emotional well-being and resilience after implementing integrated musical activities in early childhood settings.

Method

This experimental study used a within-subjects design with no control group to test the effect of integrated musical activities. Two early childhood educators in rural and urban areas of Zagreb and Međimurje counties assessed the socio-emotional well-being and resilience of 45 children before and after 6 weeks of daily musical

activities focused on three different topics according to the children's interest in animals. The sample included 21 boys and 24 girls aged 4.5 to 7 years (*M*=5.65, *SD*=0.59). Changes in socio-emotional well-being were measured using the Croatian version of the PERIK (Mayr & Ulich, 2009; Tatalović Vorkapić & Lončarić, 2014).

Results

Intensive implementation of musical activities during 6 weeks contributed to the children's interest in musical activities as well as as development of their music competencies. Analysis using paired t-tests resulted in expected significant differences between two measurement points among all six socio-emotional well-being and resilience dimensions.

Conclusions

As expected, this study demonstrated that preschool children's social skills, self-control, assertiveness, emotional stability and coping with stress, task orientation and pleasure in exploration were significantly higher after the implementation of integrated musical activities in kindergartens. Caution should be exercised in drawing conclusions from this study, as the lack of a control group makes it difficult to generalize the results. To properly assess the impact of integrated musical activities on children's socio-emotional well-being and resilience, future studies should include a control group and a larger, random sample.

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Keywords: early childhood educators' evaluations, integrated musical activities in kindergartens, preschool children, socio-emotional well-being and resilience

Radiophonic Art for Children: Exploring Riddles of Presentation and Participation through a Multimodal Approach

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Background

Earlet the Gnome and the Mysterious Doors is a children radioplay series, created to enhance their development through active listening. Each of the 10 short radioplays presents a 2-minute sound riddle, following a consistent structure: introduction jingle, sound riddle, and children's response with a finishing jingle. The content features music, sounds, and narration by adult actors and children. The radioplays were produced by RadioTeatar Bajsić &

Friends as part of the B-air project, funded by Creative Europe (10/2020-12/2023), with an aim to revive radiophonic art for babies, toddlers, and vulnerable groups, as well as to explore challenges and potentials of sound art mediation in developing concentrated listening. The sound art mediation is here understood as a cultural practice that aims to establish diverse relationships between people and sound art, through an interplay of technological interactions and musicking as the socio-aesthetic interaction (Keylin, 2023). Practical sound art mediation activities were developed using a multimodal listening methodology rooted in both music pedagogy and sound pedagogy (Recharte, 2019; Schafer, 1986; Tinkle, 2015).

Aims

The arts-based qualitative research aimed to understand children's perception of radiophonic art and effective pedagogical approaches to engage them within the artistic experience. Specifically, it explored the impact of multimodal activities based on radioplays on children's listening experiences, attention levels, emotional and motor reactions, and factors influencing their attention towards sonic, musical, and textual elements.

Method

The research, conducted from March to December 2023, involved 96 kindergarten children (aged 4-6) and 28 school children (aged 7-9) from 2 kindergartens and 2 schools in Zagreb area. Research methods included participant observation, retrospective audio analysis, and open coding of children's drawings. A variety of sound-art mediation activities derived from radioplay material and included storytelling, music-making, movement, listening games, and collaborative creation and recording of riddles with children.

Results

The research yielded scientific insights, artistic outputs such as 22 new radioplay episodes co-created by school children, and pedagogical exercises for teachers in kindergarten and elementary schools for further use. Scientific findings, obtained by triangulation of data, revealed that both listening and soundmaking exist in the continuum of participatory sound art. Multimodality showed that the deeper we engage children in the participation (not just the interaction), the more concentrated and nuanced their listening becomes. Factors influencing their attention, emotional responses, and motor reactions during the listening process included unusual sounds, repeating the introductory music jingle, the nursery rhyme in the middle, and the gestures of the mediators.

Conclusions

Findings revealed that different levels of participatory engagement enhance children's listening experiences, with multimodality being crucial in sustaining their attention. Deeper participation led to more concentrated and nuanced listening.

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Keywords: active listening, multimodality, participation, radiophonic art for children, sound art mediation.

Relational art as a way of creating music and sound works for babies and infants

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Background

Joint listening provides a safe interpersonal relationship and a rich environment for the baby's brain development and promotes sensitivity in adults (Adamson et al., 2019; Savage et al., 2021). When adults and children listen together, their relationship can flourish and take the shape of a secure attachment. Musical connection between a young child and an adult demonstrates the child's ability to tell a story beyond instinct and emotion, and how it can lead to the development of language and culture (Malloch & Trevarthen, 2010).

Aims

The study aimed to identify basic criteria for creating music and sound art that increases adults' sensitivity to infants and promotes their overall well-being and holistic development.

Method

Qualitative and quantitative study of different music and sound art performances were held and feedback from artists, parents, conductors, and different observations of infants were provided by trained researchers. Study included 36 parent-infant dyads, 5 artists, 23 musicians, and a conductor.

Results

Joint listening enables children to calm down without adult intervention. They show interest in their surroundings and express their experiences of the world. Artists developed sensitivity to the sounds they present to children, they also show enthusiasm for interacting with children during performances and became curious about observing their responses. Collaboration between creators, listeners, and experts/evaluators enabled a more holistic experience for both children and adults. The youngest participants clearly differentiated between music works directed to them and focused on sensitive monitoring and exploration of the children's world.

Conclusions:

The creativity in seeking details of aesthetic experiences and the comprehensive integration of artistic messages into the world of intimate relationships between a child and their caregiver were crucial. The mutual relationship between adults and children and the consideration of the child in artistic creation were emphasized. Throughout the entire process, an interdisciplinary team of professionals from various fields developed. Together with artists, relational art was created as a new field of exploration and creation. This provides a space for mutual sensitisation and the establishment of connections.

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Keywords: music for babies, joint listening, sensitivity, music art, attachment

Oral session 6 **Music origins**

A229, 2nd floor

Chair: Richard Parncutt

The natural soundscape as musical environment: an evolutionary psychology perspective and some possible music education related ideas. A pilot study

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Background

William Gardiner (1832) was one of the first to propose in his seminal book that natural sounds, music, and emotions could be related. In the present century, Lenti Boero & Bottoni (2008) revived his idea proposing that our evolutionary history shaped our predisposition to appreciate natural sounds emotionally and aesthetically concerning their survival value. The derivations that this vision offers in the educational field can be already found at the beginning of the 20th century Coleman (1922) proposed to begin from natural sounds as starting points in her music education activities. Several decades later, Murray Schafer (1969) referred to the soundscape as pivotal in ear training and, more generally, in the music education process.

Aims

The aim was to find out how children spontaneously interpret different environmental sounds in decontextualized listening.

Method

Twenty-five children (mean age 11 y-o) collectively listened to 14 natural sounds (geophonic, mammalian and bird species). Subjects were asked to fill out three bipolar Likert scales (joy vs fear, curiosity vs aversion, beauty vs ugliness), and to choose a verbal definition of each sound.

Results

The river's sound was significantly judged as more joyful, interesting, and nice than the volcano's. The same occurred when all the birds were compared with all the mammals ($DF = 18$, $t = 3.84$, $P < 0.001$). The blackbird's song composed of multiple "notes" was considered the nicest in comparison with the simpler sounds uttered by other birds. The harsh sound of cougar was significantly rated as the most fearful, aversive, and ugly among the mammalian sounds, and rated as aggressive or harsh by 91% of the subjects.

Conclusions

Results confirm the connection of both the background hypotheses: a) sounds related to resources of the potential survival value of our ancestors (water, birds) are more appreciated than sounds produced by potentially dangerous mammals; b) the sounds' "musical" qualities remark the relevance of making use of natural sounds in environmental and music education.

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Keywords: soundscape, emotional response, music education

Neural repurposing as a driving force in the Baldwinian evolution of musicality

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Background

As speech prosody shares many features with music, and because the ontogenetic development of speech and musical skills starts from a common phase, many researchers have proposed that natural language evolved from a music-like protolanguage (e.g. Brown, 2000), suggesting music and language started to evolve separately after the split from a common communicative precursor, and were influenced and shaped by different selective pressures. As a result, speech became enriched with semantic combinatoriality and grammar, whereas music evolved as an emotional elicitor more elaborate than affective prosody and devoid of propositional meaning.

Aims

Here an alternative view is proposed in which affective prosody, sound symbols, and pantomime were parts of a communicative niche, but none of them were the main precursor of language. Instead, by being initially independent in terms of their communicative mechanisms, they started to interact in response to new selective pressures resulting from increasing social complexity.

Main Contribution

As a driving force in this process, a mechanism of 'neural repurposing' is proposed which is a specific kind of exaptation and consists of reusing existing neural circuitry in a functionally novel tool (Schlaudt, 2022). In this case, the exaptation is phenotypical and can be transmitted solely by the means of culture. Analogous cultural invention could have been a source of interactions between affective prosody, sound symbols, and pantomime among hominins. Neural repurposing has been discovered in the contemporary communicative domain. e.g. native speakers of tonal languages differ in the lateralization of pitch processing from non-native speakers (Li et al., 2021), and the change of lateralization has been noticed among users of Turkish whistle language (Güntürkün et al., 2015). Since pitch contour is a widely used clue to indicate grammatical mood, and prosodic accents are an effective tool to communicate the hierarchy of words, it seems reasonable to assume that the elements of emotional communication were repurposed to fulfill new functions in the exchange of propositional meaning. However, due to biological costs burdened on strenuous learning of these new hominin expressions, natural selection started to favor individuals who were accidentally endowed with the predisposition to repurpose instinctively neural resources, and as a result to learn these expressions less strenuously. In a similar vein, neural repurposing would have been the primary mechanism by which hominins coopted motor areas to beat maintenance that we observe in *Homo sapiens* (Cannon & Patel, 2021).

Implications

This process – Baldwinian evolution – could have led to the genetic canalization of the use of prosody in the transmission of propositional meaning as inseparable parts of the faculty of language.

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Keywords: neural repurposing, the Baldwin effect, affective prosody, phonological system, music-like protolanguage, multidomain communicative niche

Does music have a prenatal origin? The relevance of recent empirical findings in music psychology

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Background

The theory assumes the human fetus creates a cognitive representation of maternal physical/emotional state by monitoring sounds, movements, and biochemical changes. After birth, the infant monitors caregivers, adjusting behavior to enhance survival. If a caregiver is perceived as safe, the infant can relax and play; if not, it prepares for emergencies, delaying development (Alhusen et al., 2013).

Sensory systems contribute to neurobehavioral development long before neural maturation (Borsani et al., 2019) and create long-term memories (Partanen et al., 2013). Given high infant mortality rates in hunter-gatherer societies (Hill et al., 2007), the main function of prenatal perception may be to promote infant survival.

Simple musical rhythmic, melodic, and harmonic patterns are structurally similar to prenatally perceived maternal voice, heartbeats, and footsteps. Music may activate a prenatal schema (prenatal situation from the fetal viewpoint) and related emotions: enclosure, warmth, safety, oneness, floating/flying.

Aims

To investigate relationships between a theory of music's origin based on preverbal psychology and recent empirical findings in music psychology.

Main contribution

Recent empirical research in music psychology addresses relevant topics: emotion; emotionality of structural elements (rhythm, melody, harmony); mood induction; imagery; social aspects (e.g. empathy, morality, therapy); rhythm perception (e.g. beat, meter, gesture, timing).

Evolutionary approaches to music's origin have difficulty answering central questions:

1. What motivated early humans to devote time and effort to musical activities that did not clearly promote survival or reproduction?

2. If musical motivation is emotionally founded, whence the emotion? If the answer is speech or animal cries, why not just talk or vocalize more? If physical exercise, why not just do more exercise? Musicians do not have more mating success than non-musicians (Mosing et al., 2015), and auditory skills may be best improved by practicing the skills directly.

3. Why do musical sound/movement patterns bring people together and promote prosocial behavior? Both outcomes can be achieved by sitting around a fire, eating, and telling stories.

Implications

An approach based on prenatal psychology links music to the caregiver-fetus/infant relationship, consistent with music's intrinsically social, honest, empathic nature. The motivation to perform and perceive music can be explained by operant conditioning: music activates the prenatal schema, which evokes positive emotion, which motivates repetition of musical actions.

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Keywords: prenatal, embodiment, dance, song, emotion

Making the fetus dance: Usage of music to enhance fetal movement during Kurjak Antenatal Neurodevelopment Test (KANET), proposal of methodology

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Background

Detecting fetal and infant neurological pathologies remains a critical challenge in perinatal medicine. The development of 4D ultrasound has significantly improved the visualization of fetal anatomy and allowed the real-time study of fetal behavior. The Kurjak Antenatal Neurodevelopment Test (KANET) utilizes 4D ultrasound to evaluate fetal neurological development and behavior by analyzing fetal movements. With 15 years of clinical practice, KANET is typically conducted between 28 to 38 weeks, lasting 15 to 20 minutes.

However, KANET's effectiveness hinges on fetal movement during the test, which can sometimes be limited. Considering music's influence on fetal movement and its non-invasive, cost-effective nature, incorporating music into KANET could be beneficial.

Aims

This proposal introduces a new methodology for KANET, using music to: (A) increase fetal movement compared to a control group, (B) evoke a greater variety of movements, and (C) prolong movement duration.

Main Contribution

This approach integrates five key parameters from prior research to enhance fetal movement:

1. Gestational age over 35 weeks (Kisilevsky et al., 2004).

2. Simultaneous exposure to music for mother and fetus (Araki et al., 2010).

3. Selection of classical music (Garcia-Faura & Moens et al., 2019).

4. Prior fetal familiarization with the music (Brillo et al., 2021).

5. Music faster than 60 bpm, around 70 dB or slightly higher, with a pitch range of 250-3000 Hz (Parncutt, 2016).

The study will compare a music-exposed group and a control group, where no music is played during the ultrasound.

Implications

We hypothesize:

A) Music exposure will increase fetal movement frequency compared to the control group.

B) Music will elicit a greater variety of movements.

C) Music-exposed fetuses will exhibit longer movement duration.

The study began in March 2024, led by Professor Asim Kurjak, as part of the "Non-invasive prospective screening for early detection of cerebral palsy – multicentric study." This collaboration includes researchers from Croatia, Bosnia and Herzegovina, and Greece. To our knowledge, this represents the first use of music in prenatal diagnostic testing, potentially pioneering a new research field.

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Keywords: fetal movement, music, KANET test, prenatal development

14:00 – 15:20: **Parallel oral sessions 7 – 9**

Oral session 7 **Music preferences**
Library Conference Hall, 2nd floor
Chair: Valnea Žauhar
1. Ljiljana Plazinić & Slaven Bogdanović: Rhythms of Existence: Exploring Correlations between Music Genres and Lifestyle Preferences
2. Anđela Milošević & Marko Vesić: Let There Be Rock: Music Genre Preferences and Emotion Regulation Strategies Through Music Listening in Adolescence
3. Vesna Živković, Nikola Stevanović & Ljiljana Plazinić: Musical preferences for different music genres: Relation to gender and music education
4. Valnea Žauhar, Ana Butković, Lina Šorgić & Jan Barić: The MUSIC model of music preferences and preferences for regional music

Oral session 8 **Music and social context**
A229, 2nd floor
Chair: Ena Uzelac
1. Sílvia Mendonça: Unison, Complex Sound and the Self, from the perspective of contemporary music composition
2. Luis Alejandro Villanueva: Sociomaterial assemblies underpinning processes of musical transmission and change: an evo-devo approach
3. Naomi Ziv & Michal Shoval: Music's effect on emotions and attitudes in intergroup political conflict
4. Agnieszka Siry & Romuald Polczyk.: The Influence of Music on Prejudice: The Role of Genre, Lyrics, Mood, and Political Orientation

Oral session 9 **Music education**
D2, ground floor
Chair: Antonija Vrdoljak
1. Matevž Pesek, Matija Marolt, Bor Pangeršič, Nina Plevnik & Maruša Laure: Enhancing Preschool Musical Learning Through Interactive Technology:
A Qualitative Case Study of "Little Troubadour
2. Alja Krevel, Katarina Habe & Jerneja Žnidaršič: Conceptualization of Music Improvisation among the 4th and 5th Grade Slovenian Primary School Teachers
3. Josip Šabić: Educational and career plans of youth in music education (MUSICPLAN)
4. Aleksandra Fedorova: Psychotraumatic factors in professional musical education and organization of mental health support

Oral session 7 **Music preferences**

Library Conference Hall, 2nd floor
Chair: Valnea Žauhar

Rhythms of Existence: Exploring Correlations between Music Genres and Lifestyle Preferences

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Background

Individuals seek a musical environment that enhances and reflects aspects of their personalities, attitudes, and emotions (North & Hargreaves, 2008). Understanding individuals' music preferences can offer insights into their personality traits and abilities (Rentfrow & Gosling, 2003) and different choices in interpersonal and everyday activities (North & Hargreaves, 2007). Recently, web music streaming led to the diversity of consumption of musical genres (Anderson et. al, 2021) so we wondered if there is a still substantial connection between musical genre preferences and people's lifestyles.

Aims

The research aims to investigate the link between preferences of musical genres and various lifestyle preferences.

Method

The survey involved 1013 participants, aged 16 to 65, 76.5% female. We used the modified Luković and Čizmić (2012) scale to measure the intensity of preferences for fourteen lifestyle orientations on a five-point scale: Family-sentimental, Altruistic, Cognitive, Utilitarian, Popularity oriented, Egocentric, Promethean activism, Hedonistic, Religious-traditional, Power oriented, Cultural exploration, Self-growth, Fitness, and Social gathering. Participants are shown a list of 10 broad music genres and are asked to indicate which ones they listen to for over an hour more than 4 times a week. If their preferred genres aren't listed, they're prompted to add them. Canonical analysis of covariance is used to identify and measure the associations among two sets of variables.

Results

91.5% of respondents from our sample listen to two or more genres. Tests of dimensionality for the canonical analysis of covariance indicated three significant latent dimensions. Dimension 1 had a quasi-canonical correlation of 0.43 between the sets of variables, while dimensions 2 (.31) and 3 (.23) were lower. The first canonical dimension is most strongly influenced by preferences of turbo-folk (.70) and trap music (.57) and hedonistic (.52), social gathering (.51), and utilitarian (.48) lifestyles. The second dimension is loaded mostly by preferences for older folk music (.36), religious tradition (.72), and family sentimental (.56) lifestyles. The third dimension is mostly defined by the association between classical music (-.74) and cognitive (-.65), Promethean activism (-.64), and self-growth (-.63) lifestyles.

Conclusions

The results indicate that despite the broad range of musical genres available through streaming platforms, there remains a significant link between individuals' preferred music genres and their acceptance of diverse lifestyles.

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Keywords: music genres, lifestyles, contemporary listening behaviors

Let There Be Rock: Music Genre Preferences and Emotion Regulation Strategies Through Music Listening in Adolescence

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Background

According to previous literature, affective experiences of music seem to be a central reason for music consumption. Different musical genres are associated with various outcomes of emotional regulation and adolescents' development (Cook et al., 2017). For instance, it was shown that rather than causing, heavy metal music decreased anger (Sharman & Dingle, 2015), classical and self-selected music resulted in reduced anxiety after exposure to a stressor (Labbé et al., 2007) as well as rock music genres which are positively associated with reduction of negative and increase of positive emotions (Setjiawan, et. al., 2022).

Aims

Main aim of the study was to examine the association between musical genre preferences and music-related mood regulation strategies in adolescence.

Method

The preliminary sample included 164 participants (69.1% females; age: M = 16.5, SD = 0.9), gathered through Google Forms during classes in two Serbian high schools. Participants answered questions about favorite genres, artists, and songs. Subsequently, they completed the Music in Mood Regulation scale (Saarikallio, 2008), assessing seven music-related mood regulation strategies.

Results

One-way MANOVA revealed a significant difference in the usage of music-related mood regulation strategies among groups of adolescents who listen to different music genres, $F(42,936) = 1.84$, $p = .001$; Pillai's Trace = .983, $\eta p^2 = .076$. Specifically, differences were found in the strategy *Discharge* ($F(6, 157) = 2.407$, $p = .030$, $\eta p^2 = .084$). Post-hoc tests indicated that adolescents who listen to *rock, metal, and punk* employ *Discharge* more frequently compared to those who *prefer rap, trap, and hip-hop* ($p = .020$, 95% C.I. = [.13, 2.47]).

Conclusions

Adolescent music preferences are often driven by utility, aesthetic appeal, and emotional states, making genre categorization even more challenging in addition to the genre-blending of contemporary music. The study revealed that the strategy *Discharge*, venting anger through aggressive music, is more common among *rock, metal, and punk* enthusiasts in comparison to *rap, trap, and hip-hop* listeners. Understanding whether specific emotion regulation characteristics influence genre preferences or if genre choices predispose individuals to adopt particular emotional regulation strategies is crucial for future research on the origins of adolescent music preferences and their impact on emotional development.

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Keywords: music genres, mood regulation, emotions, music, adolescence

Musical preferences for different music genres: Relation to gender and music education

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Background

Musical preferences reflect individual differences shaped by various factors such as gender differences, age, personality, cognitive and emotional responses to music, musical processing, and social and cultural contexts (Fricke et al., 2019; Hargreaves et al., 2005; Greasley & Lamont, 2016). Furthermore, musical training has been identified as a significant factor influencing the evaluation and acceptance or rejection of a musical piece (Dobrota & Reić Ercegovac, 2017).

Aims

We aimed to investigate gender differences as well as the relationship between music education background and musical preferences.

Method

We surveyed 1012 participants (76.6% female) aged 16 to 65 to study musical preferences linked to gender and music education. Participants completed an online questionnaire about their gender, music education background, favorite music genres (classical, pop, rock/alternative, rap, hip-hop, trap, old and new Serbian folk music, metal, electro, house and techno music, other), music choices in social settings, and most listened-to music during childhood.

Results

Chi-squared tests showed males were more frequently fans of metal ($\chi^2 = 46$; $df = 1$; $p < .001$), rap/hip-hop ($\chi^2 = 26.257$; $df = 1$; $p < .001$), electro/house ($\chi^2 = 23.527$; $df = 1$; $p < .001$), techno ($\chi^2 = 14.208$; $df = 1$; $p < .001$), and rock/alternative music ($\chi^2 = 11.592$; $df = 1$; $p = .001$), while females were more frequently fans of pop music ($\chi^2 = 54.753$; $df = 1$; $p < .001$). A similar pattern was detected in the music listened to while growing up. With higher levels of music education, classical music preferences steadily grow ($\chi^2 = 278{,}291$; $df = 5$; $p < .001$) and the number of rock/alternative music fans remains consistent across different levels of music education ($\chi^2 = 20.116$; $df = 1$; $p = .001$).

Conclusions

Gender differences are most noticeable in preferred music types and genres during upbringing, with less variation observed in social music settings. Similarly, individuals with higher music education qualifications exhibit distinct music preferences compared to those with lower education levels, though these differences are less apparent in social music contexts.

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Keywords: musical preference, gender differences, music education background

The MUSIC model of music preferences and preferences for regional music

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Background

The MUSIC model by Rentfrow et al. (2011) is a standard framework for conceptualizing music preferences. It includes preferences for mellow, unpretentious, sophisticated, intense and contemporary music. The model has been replicated across countries (Greenberg et al., 2022). When preferences are measured according to this

model in Croatian samples, the limitation is that it does not take into account preferences for regional music that do not fit into the five dimensions of the MUSIC model.

Aims

The aim of the study was to examine the structure of music preferences when regional music excerpts were used together with music excerpts from the MUSIC model to measure music preferences. Another aim of the study was to examine the relationships between preferences, uses of music and music consumption.

Method

A total of 192 participants (65% female; M_{age} = 20.57, SD_{age} = 1.38) listened to 26 music excerpts and rated how they liked them. Twenty-one music excerpts were used to measure preferences for mellow, intense, sophisticated, unpretentious and contemporary music (Rentfrow et al., 2011). Five music excerpts measuring regional music preferences were selected in a pilot study. Participants completed the Uses of Music Inventory (Chamorro-Premuzic & Furnham, 2007) and the Music Consumption Scale (Chamorro-Premuzic et al., 2012).

Results

Confirmatory factor analysis was used to examine the expected six-factor structure of music preferences when using excerpts intended to measure the five dimensions of the MUSIC model and a regional music dimension. The results showed that the six-factor structure was acceptable ($\chi2[284] = 661.10$, $p < .001$; NC = 2.33; CFI = .80; RMSEA = .08; SRMR = .09). Reliabilities ranged from $\alpha = .62$ (mellow music) to $\alpha = .89$ (intense music). Some music preferences were positively correlated with uses of music: preference for mellow music correlated with emotional use of music ($r = .17$), and preference for sophisticated music with cognitive use of music ($r = .33$, $ps < .01$). Preferences for mellow ($r = .27$), unpretentious ($r = .19$) and sophisticated music ($r = .35$) all correlated positively with music consumption ($ps < .01$).

Conclusions

In future studies, regional music excerpts can be used to extend research on music preferences using the MUSIC model.

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Keywords: music preferences, regional music, uses of music, music consumption

Oral session 8 **Music and social context**

A229, 2nd floor
Chair: Ena Uzelac

Unison, Complex Sound and the Self, from the perspective of contemporary music composition

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Centro de Estudos de Sociologia e Estética Musical CESEM - NOVA FCSH, Lisboa, Portugal

Background

The harmonics of a Complex Sound, vibrating simultaneously as a chord, are not picked up by the human ear entirely. Normally, just one note associated with a sound source is heard. This operation is carried out by the brain, combining the partials into a single note to detect the sound source. The experience of musical sound is always relational (Webern & Reich, 1963). Even so, we can say this relation is translated into a whole, like the figure-ground relation in Gestalt psychology.

Ethnographic studies show that capturing the unity of the Unison is cultural and contextual and that it is possible and desirable to try hearing in this sound the similarities on the one hand, and the discrepancies on the other, adopting a more flexible attitude towards the most common definition of the Unison, one that can encompass and integrate a sound universe open to the expressive and performative possibilities of this plastic element (Napier, 2006).

Aims

This communication discusses the exploration of the Unison as a single sound in its possible manifestations and relations with the perception of Complex Sound (composed of multiple frequencies), from developing its vertical function in music to its approaches in the practice of contemporary musical composition.

Method

To preserve the concept of Unison as a plastic element of musical language, various 20th-century composers helped reconstruct a new idea of Unison, revealing a Unison of differences (Kuhn & Cage, 2016; Potter & Gann, 2016) by expressing this same idea: political vision, as in Louis Andriessen or even John Cage; concerns about musical form, in Steve Reich; spiritual issues, in Giacinto Scelsi; and their perspective towards time, from the first electronic music experiments, linked to the idea of periodicity in Gérard Grisey, or even related to spatiality, the concept of Split Unity in Karlheinz Stockhausen, and the Korean unison in John Cage.

Results

Their common denominator is seeking to create other ways of perceiving sound based on a new attitude towards musical material. The possibility of rethinking unity allows a shift from the individual sphere to the social sphere, where the Self must be understood.

Conclusions

We investigated how contemporary composers use the Unison in their works and relate to a conception of the Self as other, different and socially situated rather than individualized or closed in on itself. This allows considering a sound spectrum within simultaneity, verticality and unity, as emancipation towards the totality of the sound

field and the relationships that can be established there. This can be interpreted as a paradigm shift towards a time of coexistence (Neves, 2019), of relationship, and a shift in consciousness and, ultimately, of the Self.

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Keywords: sound, consciousness, time, unity, multiplicity

Sociomaterial assemblies underpinning processes of musical transmission and change: an evo-devo approach

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Background

Cultural evolutionists have largely adapted the modeling tools of population genetics to study processes of cultural transmission and change. Most of these models endorse a conceptualization of culture as information stored in the human brain and expressed in behavior and artifacts. Accordingly, objects and artifacts are seen as depositories of the mental contents of individuals (Boyd & Richerson, 2005). However, this informationist approach to culture overlooks both the important role that material culture plays in the social and cognitive development of agents and how this impacts the production and transmission of cultural traits across generations. Unlike this informationist approach to evolution, the research agenda in evolutionary developmental biology, or evo-devo, has focused on how the mechanistic aspects of development shape and are shaped back by the patterns and processes of evolution. This evolutionary perspective has inspired new approaches to cultural evolution in which cultural transmission and change are not solely understood as the transmission of mental contents but as the result of a complex process scaffolded by a dynamic interrelation of cognitive, social, and material items (Caporael et al., 2014). However, these models are still underdeveloped, and the application of this framework to the study of processes of musical transmission and change is still lacking.

Aims

This paper aims to propose key theoretical bases upon which an evo-devo approach to music can be developed. It starts from an understanding of music as something that emerges from mechanisms of social interaction (Cross, 2012) supported by a set of cognitive capacities embodied and distributed among individuals, practices, and artifacts (Martinez & Villanueva 2018). It will be suggested that an evo-devo approach to musical reproduction and change should focus on analyzing the specific structuring of complex assemblages of capacities, artifacts, and practices, and how this aggregation of elements is maintained or modified across generations.

Main Contribution

This perspective will enable us to study processes of musical transmission and change as a result of a restructuring over time of the socio-material systems in which a musical tradition is embedded, and provide new insights into how this restructuring can be driven by different mechanisms, such as the incorporation, disappearance, and reactivation of specific elements.

Implications

New conceptual tools will be provided for studying not only processes of musical transmission and change, but also processes of musical revival and diversification. This will be illustrated with ethnographic and historical examples of how the restructuring of the *fandango* (an ancient celebration in Veracruz, Mexico) during the last decades of the last century (Garcia Díaz, 2022), as well as the reactivation of *son jarocho* music in Mexico, are intimately interconnected.

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Keywords: Musical transmission and change, musical revival, son jarocho music, evo-devo, sociomaterial assemblies

Music's effect on emotions and attitudes in intergroup political conflict

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Background

According to Social Identity Theory (Tajfel & Turner, 1986) identification with an ingroup may lead to biases such as ingroup favoritism and outgroup derogation. Affective polarization refers to the growing tendency of opposing political groups to view their ingroup in a more positive light and the outgroup more negatively (Iyengar & Krupenkin, 2018). The judicial reform initiated by the right-wing Israeli government sparked strong opposition, exacerbating tensions between groups. Massive weekly demonstrations were held during the first months of 2023. These demonstrations included music and protest songs. While the role of music in social movements has been theoretically analyzed (Jasper, 2011), few empirical studies have investigated its effect on intergroup conflict.

Aims

The present study, conducted between May-July 2023, aimed to examine whether "unity" or "protest" songs may prime emotions related to a common ingroup identity (CI), and whether these emotions would lead to more moderate or extreme attitudes toward the opposing group. It was hypothesized that unity and protest songs

would elicit more positive and negative CI emotions respectively, and influence ingroup and outgroup attitudes accordingly. It was likewise hypothesized that this influence would be stronger when the message is presented in songs than in parallel texts.

Method

401 participants (mean age =32.21, *SD* = 5.105) took part in the online study. Participants indicated their degree of support of the reform and were randomly assigned to four groups: two groups heard either a unity or protest song, and two groups read parallel texts expressing similar messages. Two scales measured positive (4 items) and negative (3 items) CI emotions evoked by the stimuli. Finally, a 21-item questionnaire measured Ingroup-Conviction and Outgroup-Derogation (ICOD, 10 items), Ingroup-Guilt and Outgroup-Perspective (IGOP, 9 items), and Willingness to Compromise (2 items).

Results

Regression on CI emotions showed unity and protest stimuli predicted higher positive and negative CI emotions respectively. This effect was stronger in songs than texts, and was moderated by degree of reform support.

Separate regression analyses were then conducted for the music and text groups on the ingroup/outgroup attitudes scales. In both samples, ICOD was positively predicted by reform support and extremism and IGOP was negatively predicted by extremism. However, only in the music groups did emotions evoked by the stimuli predict attitudes, with negative emotions predicting higher ICOD, and positive emotions predicting higher scores on IGOP. Willingness for compromise was predicted in both groups by positive emotions.

Conclusions

The reported study points to the role of music in intergroup conflict. It demonstrated that only emotions evoked by music may influence attitudes, whereas identical messages expressed by texts do not.

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Keywords: social identity, conflict, emotion, attitudes

The Influence of Music on Prejudice: The Role of Genre, Lyrics, Mood, and Political Orientation

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Background

Much of the evolutionary theory regarding the origins of music centers around its pro-integration or communicative properties (Cross, 2003). However, it seems that the psychology of music has only been studying its impact on social relationships for about two decades. Research has demonstrated that both passive and active

engagement with music can have prosocial effects and strengthen social bonds (e.g., Greitemeyer, 2009). Furthermore, investigations into the effects of music on out-group attitudes are relatively limited and often involve the use of music in conjunction with lyrics, synchrony, or video clips (e.g., Greitemeyer and Schwab, 2014).

Aims

We aimed to investigate whether exposure to music alone can reduce prejudice towards outgroups, while also examining the roles played by music genre and lyrics in this process. Since mood and emotions are frequently suggested as mediators of the prosocial influence of music, they were included in the study as such. Furthermore, to better accommodate individual differences, we proposed political orientation as a moderator.

Method

The study was conducted individually, with 120 participants randomly assigned to one of four experimental groups: 1) control (no music), 2) prosocial music, 3) instrumental music, and 4) foreign music. Each participant was initially exposed to three minutes of the respective music type and then completed two prejudice measures: the social distance scale and point allocation task. Additionally, participants provided responses for measures of emotions, mood, and political orientation.

Results

One-way ANOVA with simple effects showed one significant between-group difference in project support and one near-significance difference in social distance, both between control group and instrumental music group, supporting hypothesis predicting lower prejudice in groups exposed to the music. Additionally, political orientation was a statistically significant moderator of the relationship between social distance score and difference between control and experimental groups: instrumental and foreign. Therefore, the prejudice mitigating effect was only significant for people with centrist or right-wing orientation, as in the left-oriented group, the floor effect occurred. Mediation analyses resulted in no significant results on emotions or mood significance.

Conclusions

The results of our study indicate that instrumental music significantly reduces prejudice towards an out-group. However, music with prosocial lyrics appears to have limited effectiveness; while it can enhance prosocial behavior, it may not necessarily diminish persistent negative attitudes toward the out-group. The impact of foreign music can be more complex and challenging to discern, as opposing mechanisms may be at play.

While mood and emotions are easily influenced by music (Västfjäll, 2001), our findings suggest that they may not provide the best explanation for the prejudice-mitigating influence of music. Music's associations with empathy (Clarke et al., 2015) suggest it may be a more plausible mechanism for the social influence of music, although it has yet to be verified empirically. The inclusion of political orientation highlights the importance of incorporating basic inter-individual determinants of prejudice in social effect research.

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Keywords: music, political orientation, prejudice, prosociality, social psychology

Oral session 9 **Music education**

D2, ground floor
Chair: Antonija Vrdoljak

Enhancing Preschool Musical Learning Through Interactive Technology: A Qualitative Case Study of "Little Troubadour"

Matevž Pesek[1], Matija Marolt[1], Bor Pangeršič[1], Nina Plevnik[1], Maruša Laure[2]

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Background

"Little Troubadour" seeks to provide an interactive, gamified musical learning environment aimed at preschool children. It is based on previous work on the Troubadour platform (Pesek et al., 2020), an open-source, web-based platform for ear training. The platform was developed to engage students in music theory learning by offering them a flexible and individualized medium for practice through automatically generated and evaluated exercises. The evaluation of the Troubadour platform showed a positive impact on the learners' performance in conventional exams (Pesek et al., 2022). The "Little Troubadour" platform is designed to stimulate auditory perception, musical skills, and knowledge, incorporating elements such as badges and rewards to motivate and engage young learners. Research into the efficacy of gamification in learning environments supports its potential to enhance engagement and learning outcomes (Deterding et al., 2011).

Aims

This research aims to explore the interaction between preschool children and "Little Troubadour" to evaluate its effectiveness for early musical learning. Specifically, it will assess user experience qualitatively, focusing on children's engagement with the app, the need for adult supervision, and the app's potential for assessing musical skills. The study will observe behaviors such as attention span, response to musical cues, and emotional reactions during app interaction.

Method

Employing a qualitative case study approach, this study will observe five preschool children interacting with the "Little Troubadour" app over several sessions. Data collection will include observational notes, video recordings, and semi-structured caregiver interviews to gain insights into the children's interactions with the app. This approach allows for an in-depth analysis of each child's engagement, learning process, and interaction with the app's musical and gamification elements. Specific behaviors observed will include app navigation, responsiveness to musical exercises, usage duration and frequency, and overall enthusiasm and motivation.

Results

Preliminary findings suggest that "Little Troubadour" is intuitive for children to navigate, requiring minimal adult assistance. The app's gamification features are expected to significantly enhance children's motivation and sustain their attention during sessions. Anticipated outcomes include positive engagement and early development of musical skills among preschool children. Further analysis will provide comprehensive insights into the app's effectiveness and the role of adult mediation.

Conclusions

The study of "Little Troubadour" presents a step towards understanding the intersection of technology, gamification, and music education in early childhood development. These findings will offer concrete insights for educators and developers aiming to create digital learning tools that support active engagement and learning autonomy in young children.

References

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Keywords: early music education, gamification in learning, child-technology interaction, digital educational tools

Conceptualization of Music Improvisation among the 4th and 5th Grade Slovenian Primary School Teachers

Alja Krevel[1], Katarina Habe[2], Jerneja Žnidaršič[1]

[1]University of Maribor, Faculty of Education, Maribor, Slovenia. [2]University of Ljubljana, Academy of Music, Ljubljana, Slovenia

Background

Music improvisation can be defined as a spontaneous musical performance in real time (Koutsoupidou, 2005). Music improvisation activities in primary education settings greatly benefit the musical development (Beegle, 2010; Whitcomb, 2013), mental development of children, including their creative thinking (Navarro Ramón & Chacón-López, 2021), and the ability to express their emotions (Whitcomb, 2013). While teachers generally have positive attitudes to music improvisation implementation (Koutsoupidou, 2005), their experiences and opinions often influence the extent of improvisational activities in their classroom (Hickey & Schmidt, 2019; Koutsoupidou, 2005).

Aims

The aim of the study was to investigate the conceptualization of music improvisation among Slovenian 4th and 5th grade primary school teachers. More specifically, we explored which music activities do teachers attribute to the broader concept of 'music improvisation'.

Method

We used a qualitative approach of pedagogical research. Our sample consisted of 46 classroom teachers and 20 subject teachers who teach music in the 4th and 5th grades of primary school. Teachers completed an online questionnaire. In addition to general demographic questions (gender, age, workplace, years in the profession, statistical region) and questions about the integration and perception of music improvisation, respondents were

given an open-ended prompt to list 3 to 5 musical activities they believe can be categorized as 'musical improvisation'. These responses (n = 59) were qualitatively analysed using thematic analysis.

Results

The qualitative analysis of teachers' responses revealed a complex understanding of music improvisation and the activities that shape it. Some of these conceptualizations deviate from academic definitions of music improvisation activities. Teachers generally understand music improvisation as a conceptually broad concept that integrates different music activity fields.

Conclusions

The results are interpreted within the framework of existing empirical and theoretical research on perceptions and conceptualizations of music improvisation activities in music education. Our findings indicate that teachers have a wide and rather vague understanding of music improvisation. We advocate for teachers' better understanding of improvisational activities in music education. Due to the small sample size in our study, further research is required to enhance understanding of the complex dimensions of music improvisation perceptions in educational settings.

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Keywords: primary school, music education, musical activities, music improvisation, teachers' conceptualizations

Educational and career plans of youth in music education (MUSICPLAN)

Josip Šabić

Institute for Social Research in Zagreb, Zagreb, Croatia

Background

A notable disparity exists between the high initial enrollment rates of Croatian students in elementary music schools and their significantly lower rates of completion and advancement to upper secondary and higher music education (Ministry of Science and Education, 2023). However, there is a scarcity of studies, both nationally (e.g., Franceschi, 2022) and internationally (e.g., Miksza et al., 2021), that explore the factors that shape students' plans for pursuing music education and careers. This presentation introduces the research project "Educational and career plans of youth in music education (MUSICPLAN)", funded by the European Union - NextGenerationEU as part of the National Recovery and Resilience Plan 2021-2026. In this project, potential factors influencing the

educational and career aspirations of youth enrolled in music education in Croatia will be explored. The project's conceptual framework is based on the self-determination theory (Ryan and Deci, 2000) and the cultural reproduction theory (Bourdieu, 1977).

Aims

The aim of the project is to examine the role of various motivational variables arising from the theory of self-determination (e.g., the degree of internalization of the motivation for attending music education and the [un]fulfillment of basic psychological needs through attending music education) and mechanisms of cultural reproduction (e.g., family habitus and cultural, economic and social capital) in explaining the educational and career plans of youth attending music education.

Main Contribution

There is a lack of research in the field incorporating diverse theoretical perspectives and encompassing samples of youth across various age groups. This project aims to fill this gap. A mixed research design will be used, which implies a combination of quantitative (questionnaires) and qualitative research methodology (interviews). Participants from all stages of music education will take part in the research: elementary and upper-secondary music school students and students pursuing higher music education.

Implications

The project aims to improve our understanding of the factors that impact students' choices to continue their music education and pursue music careers. This, in effect, may contribute to more effective planning of academic and professional guidance for students. Furthermore, the project findings can contribute to the development of strategies aimed at supporting the retention of students with lower cultural, economic, and social capital in music education. This presentation provides an opportunity for the representatives from music education institutions to engage in the project.

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Keywords: music education, educational plans, career plans, self-determination theory, cultural reproduction theory

Psychotraumatic factors in professional musical education and organization of mental health support

Aleksandra Fedorova

Independent Researcher

Background

Musicians face unique challenges that can significantly impact their professional performance. Two key assumptions are that music students have a lower sensitivity threshold to trauma compared to other students, and that the psychological support system for musicians is inadequate.

Aims

This study aimed to understand the impact of psychotraumatic experiences on music students' professional training.

Method

This study utilized theoretical (literature analysis) and empirical methods: psychological observation, interviews, testing, and questionnaires. It involved about 100 musicians from Moscow universities and a control group of 30 students from other fields. Methods included the Mississippi Scale for post-traumatic reactions, Coping Strategies Questionnaire, and SHOVTS.

Results

Musicians are more sensitive to traumatic events, particularly the death of loved ones, physical injuries, and family conflicts. The teacher-student relationship is crucial, with conflicts significantly affecting professional development. Musicians often exhibit high self-control, but excessive control can lead to anxiety and decreased performance (Weathers et al., 2018).

Stress levels among musicians were higher than in the control group, with 90% affected by trauma-related stress. Musicians also showed higher adaptation issues and increased self-control in stressful situations but lacked effective coping skills.

Conclusions

The study highlights the need for comprehensive psychological support for musicians, which is largely absent in Russia. Musicians require professional counselling, but institutional support is lacking. The findings underscore the importance of integrating psychological services into music education to address the high levels of stress and trauma in this professional group.

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Keywords: stress, trauma, music performance, psychological counselling, education

15:30 – 16:30: **Keynote 2**

D7, ground floor
Chair: Ana Butković

Gene-environment interplay in skill learning and expertise: what have we learned from research on music?

Fredrik Ullén

Max Planck Institute for Empirical Aesthetics, Frankfurt am Main, Germany

Expertise, i.e. a high level of skill within a specific domain, has traditionally been considered to depend essentially on one factor, long-term practice. However, recent research on large genetically informative samples shows that reality is more complex and interesting. In my talk, I will discuss key findings from our work on musical expertise, where we use a combination of approaches from behavior genetics and neuroimaging to analyze individual differences in musical expertise, and the neural representation of musical skills in the auditory-motor system. The overall picture provided by this work is that the acquisition of expertise is a complex process, which is shaped by an interplay between many variables that include practice but also genetic factors, traits of the individual and properties of the environment (Ullén et al, 2016; Wesseldijk et al., 2023). With examples from studies using twin modelling as well as, more recently, analyses of genotyped data (Wesseldijk et al., 2022, 2024), I will illustrate how studying expertise in genetically informative samples provides unique possibilities to disentangle genetic from non-genetic influences, and analyze causal mechanisms. Specifically, I will provide evidence for that gene-environment interplay in expertise involves both gene-environment interactions, i.e. that genetic influences on expertise are moderated by environmental factors (Mosing et al., 2024), and covariation between genes and relevant environmental variables (Wesseldijk et al., 2023).

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Keywords: expertise, achievement, genetics, twin modelling, neural mechanisms

17:00 – 17:45: **Round table**

Library Conference Hall, 2nd floor

Activities of the Regional Network Psychology and Music (RNPaM)

Convenors: Sanja Kiš Žuvela and Ana Butković

The Regional Network Psychology and Music (RNPaM) idea appeared during the first International Conference *Psychology and Music – Interdisciplinary Encounters* (Belgrade, 24 – 26 October 2019). It is encouraged and supported by the European Society for the Cognitive Sciences of Music (ESCOM).

The main reason for establishing RNPaM was to interconnect colleagues from academic institutions, researchers, and practitioners in the interdisciplinary field of psychology and music in Western Balkans. We intend to support, encourage, and enhance the development of the psychology of music as an academic and applied discipline in regional centres and to open possibilities for collaboration among colleagues with interdisciplinary orientations and interests from related social sciences and humanities. This round table aims to present the regional developments in the field since the last *Psychology and Music – Interdisciplinary Encounters* conference.

Friday, 25 October 2024

Academy of Music

PROGRAMME

9:30 – 10:30: **Keynote 3**

Bersa Hall, ground floor

Chair: Blanka Bogunović

The roles of self-determination and self-regulation in novice to expert musicians

Gary E. McPherson

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To perform any skilled activity to an expert level requires crossing the threshold from casual or partial engagement to committed and intensely motivated learning. To understand these processes, much of my research has applied *self-determination theory* to explain motivation and *self-regulated learning* to explain practice quality. In this presentation, I will show how *self-determination theory* can be used to understand learners' motivation as they move from extrinsic to intrinsic motives during their development. A particular focus will be on how autonomy-supportive learning environments address musicians' need for autonomy, competence, and relatedness and propel them to become self-directed with their learning.

Using concepts drawn from *self-regulated learning* to study skill development, I will show how better musicians use more sophisticated strategies, are more confident about their abilities, practise in a more motivated and engaged manner, and that these variables predict achievement above and beyond the quantity of practice they may have accumulated. This is because *self-regulated learning strategies* equip students with the skills necessary to gradually take more control of their learning using deliberate strategies (suited to their age and stage) to plan, monitor and evaluate their learning.

11:00 – 12:40: **Parallel oral sessions 10 – 12**

Oral session 10 **Piano playing**

Stančić Hall, 4th floor

Chair: Ivan Ćurković

1. Ana-Marija Markovina: Piano and Identity

2. Petra Šket & Sanja Kiš Žuvela: The relationship between pianists' professional habits and their physical and mental condition

3. Ana Kovačević: Expressive body movements in piano performance – A comparative study

4. Maria Bernardete Castelan Póvoas: Pianistic action, analysis and motor coordination – Interdisciplinary application in the practice organization

5. Ivana Franceschi: Encouraging Motivation for Piano Practice: The Role of Self-Efficacy, Deliberate Practice and Achievement Motivation in Piano Pedagogy

Oral session 11 **Music and perception**

Classroom 324, 3rd floor

Chair: Una Mikac

1. Elena Rovenko: Vincent d'Indy's Concept of "Significant Keys" Through the

Psychology of Perception of the Fin de Siècle Era: Constructing a "Complex" Sign in Music

2. Solange Glasser, Benjamin Loveridge & Zinia Chan: Exploring the use of virtual reality to depict the synaesthetic percepts of a music composer

3. Eduardo Solá Chagas Lima: Music Notation-to-Colour Synesthesia and an Alternative to Müller's "Law of Specific Nerve Energies"

4. Katarina Stekić & Dušan Stojanović: The Role of Emotional Congruence in Emotional Perception and Recognition of Song Lyrics

Oral session 12 **Music training**

Huml Hall, 4th floor

Chair: Nikolina Matoš

1. Valnea Žauhar, Sabina Vidulin & Marlena Plavšić: Listening to music pieces in ear-training: Experiences about the music, the lesson and knowledge acquisition

2. Anđela Vukašinović, Sunčica Borisavljević & Pavle Belić: Students' perspectives on ways to include preferred musical genres in solfeggio classes

3. Nawras Kurzom: Examining the effects of isolated musical chords on memory formation: Contrasting impacts of major versus complex chords

4. Gabriele Kaufman, & Marta Dosaiguas Canal: Perception, Experience and Singing capabilities: A case study of the developing aural skills in Musicology students

Oral session 10 **Piano playing**

Stančić Hall, 4th floor

Chair: Ivan Ćurković

Piano and Identity

Ana-Marija Markovina

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Background

Piano playing is the field of thought and hypothesis for artistic identity. Two different terms are at the centre: One describes an activity of an artistic nature, the other has a high epistemological claim that connotes individual-psychological, developmental and cultural meanings.

Aims

Which group of people is described as having an "artistic identity"? Artistic identity is a process of development (Kölsch, 2019). The "achieved" artistic identity is not a state, but a stage of a permanent process. The term "artistic" is subject to wide fluctuations in interpretation, which are historically significant.

The term "identity" is closer to psychological research. It is a construct found in the developmental psychology. The study refers to those who, in their encounter with the piano, pursue an artistic activity that goes far beyond a private hobby and makes serious demands on their own biography, i.e. a profession.

Method

In my research, I have investigated both terms empirically and hermeneutically based on narrative biographical data collection. My interviewees had completed the highest possible degree at a German *Musikhochschule* in the *Konzertexamen*. There were 25 pianists in total, 20 female and 5 male. Their age ranges between 30-50 years. With the help of narrative interviews, key sentences were identified in order to extract the essential aspects that lead to identity formation (Mayring, 2010). Hypothesising is a heuristic, qualitative process. The empirical procedures derived from this must be interpreted and this is a hermeneutical aspect (Oevermann, 2002). There are nine main question topics: Biography, interests and social life, entrance exam, studies, final exam, future planning, artistic identity, subjective life contentment and reflection. In addition, expert interviews were also set up with people from the domain.

Results

The study shows that pianists are a well-qualified group. They are highly educated, hard-working and intrinsically motivated by their love of music. Pianistic education is perceived as the development of their artistic personality, not as professional training. There are significant similarities between all interview partners. The influence of the teacher's personality on their career is important for their life path. Life contentment is related to the subjective experience of success. Practicing is experienced as identity-forming, not external success. (Spitzer, 2002). This creates a contradiction to the expectation conveyed during education that a stage career must be achieved.

Conclusions

The pianistic profession and the identity possibilities it offers have undergone significant changes. The profession as a concert pianist is a relatively new form of identity. The profession as a single podium identity does not exist and must seek new diversifications: It must develop pluralistic careers that correspond to the multifaceted qualities of its graduates.

References

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Keywords: pianist, concert, career, identity

The relationship between pianists' professional habits and their physical and mental condition

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Background

Pianists are prone to developing professional injuries considering their physically and technically demanding repertoire, which requires strenuous practising (Matei & Ginsborg, 2020), leading to severe consequences for their performance, health, and careers (Chan, 2014). Despite the increase of recent studies dealing with musicians' professional injuries, the information about risk factors connected with their physical condition and working habits remains limited.

Aims

We aim to examine the relationship between pianists' professional habits, physical condition, pain prevalence, and burnout, and determine what may contribute to injuries and difficulties, or decrease their occurrence.

Method

Croatian pianists (N = 54; 57.41% female) participated in the survey. The questionnaire was compiled of the *Musculoskeletal Pain Intensity and Interference Questionnaire for Musicians* (Berque et al., 2014), the *Burnout Assessment Tool* (Schaufeli et al., 2019), the *Physical Activity, Sedentary Behaviour, Anxiety and Musculoskeletal Issues Questionnaire* (Matei & Ginsborg, 2020), and the authors' questions. The pain signs and symptoms were measured using an adapted version of the graded scale by Robinson and Zander (2002). Statistical data were calculated using the JASP software.

Results

An average participant played the piano 26 hrs 21 mins weekly during the past year. 66,67% of participants experienced pain or physical difficulties that prevented them from playing the piano at their usual level; 50% during the last 12 months. Female participants reported more experiences of pain, physical difficulties and issues with special pianistic techniques. The average number of hours playing the piano off-duty in the past year moderately positively correlates with the reports of pain or physical difficulties that prevented the pianists from playing the piano at their usual level. Negative correlations have been established between the reports of pain and the average number of hours playing the piano in controlled conditions. A sedentary lifestyle and a lack of physical activity also predict issues with pain.

Conclusions

Participants devote a great portion of their time to playing the piano, which, together with a sedentary lifestyle, can contribute to serious health issues, including professional injuries. Most self-reported issues are dominant and heavier among female participants. The study should be performed on a larger sample, as some obvious trends could not have been confirmed statistically due to a few answers in multiple categories.

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Keywords: pianists, professional habits, well-being, pain, physical activity

Expressive body movements in piano performance – a comparative study

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Background

The study explores expressive body movements in the performance, revealed through an empirical study aiming to define a movement vocabulary of three selected pianists, including the author of the research. As a theoretical background, Hatten's theory of musical gesture is selected (Hatten, 2004), as well as the models for empirical research are studies of authors like Davidson (2002, 2007, 2012), Wanderley (2000, 2006), and Bogunović et al. (2014).

Aims

The main aim of this study is to show which body movements have expressive potential when playing the piano. In addition, the thesis of the idiosyncratic nature of musical performance in relation to the expressive power of body movements is to be confirmed relying on empirical quantitative methods. Furthermore, comparison of body part usage of selected pianists and differences in perception of performances in terms of study department, instrument and gender of the listeners are examined.

Method

The study employed empirical quantitative and comparative research methods based on Davidson's (2012) research model, using an adapted typology of body movements and a sample of three different performances.

Video performances of selected parts of Tchaikovsky's Grand Sonata – by the author of the study and two renowned pianists – form the primary material for the analysis. The expressiveness of the body movements during the performance is evaluated by a selected group of 85 expert examinees. The questionnaire was applied while observing video material (12 tables for each video sample, 26 movements divided into 4 groups, 1-5 Likert scale). We performed a one-way analysis of variance (ANOVA) and t-test.

Results

The results are statistically significant and show that in Tchaikovsky's Sonata, expressive movements in the performance have a more substantial expressive potential than others. Torso movements have been shown to bring the greatest expressive potential. Idiosyncrasy in the performance was confirmed, as each pianist has their own body vocabulary, and personal expressive power of specific movements during the performance and uses it to create a unique interpretation of the work. The expressiveness of the movement varies in intensity in the three different performances. Perception differs depending on the instrument that listeners play and gender.

Conclusions

The results highlight the importance of awareness and contemplation of the musical content through body movements which have clear implications for performers. The performer must be aware of his movements, so that perfect harmony between the idea and the physical realization is accomplished. The movements should be utterly purposeful so that the true intention of the interpreter is realized.

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Keywords: piano music, body movements, idiosyncrasy of musical performance, body vocabulary, musical gesture

Pianistic action, analysis and motor coordination – Interdisciplinary application in the practice organization

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Background

This research examines technical-instrumental strategies through an interdisciplinary approach, focusing on areas related to human movement and motor coordination. Essential conditions for achieving optimal results in instrumental music performance include knowledge of the bodily aspects involved in the action, familiarity with the materials being manipulated (such as the score and the piano), and the organization of the process leading to the desired outcome. The first aspect involves understanding the characteristics of the performer and the specific content being worked on. The organizational aspect aims to guide professionals in optimizing their use

and control of actions (Davidson & Correia, 2002; Sloboda, 2008), and outlines the necessary steps to achieve desired results. This topic is addressed by researchers from various fields, including motor control (Magill & Anderson, 2017), cognition (Pinto, 2010), and performance practices related to pianistic action and technical strategies, such as movement cycles and SMRD (Simplification of Movement by Distances Reduction) (Póvoas, 2017).

Aims

The primary purpose of this research is to explore interdisciplinary concepts in practice and their impact on motivation during training, as well as the optimization of piano performance through continuous analysis (feedback) of training and performing repertoire in specific performance situations. The research aims to establish connections between music material and piano practice, incorporating the planning of practice and the use of cited technical strategies, with consideration for Analytical Reflection (AR).

Main contribution

The detailed description of the issues raised, coupled with information analysis and diagnosis of the causes, should contribute to establishing criteria for selecting technical resources to address technical-instrumental situations, leading to the optimization of pianistic action.

Implications

Within the analytical context of interactions, it is suggested that, as an integral part of the process, relationships be established between common patterns or similarities among musical configurations, articulations, and corresponding body movements during the conditioning process and technical musical mastery. Additionally, there is an association between previously experienced technical-musical situations and those present during practice performance. These actions may optimize training time and energy. Associations should also promote greater concentration, increased objectivity in the organization and execution of movements, and improved physical-muscular performance, leading to an impact on aesthetic-sound performance.

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Keywords: Pianistic movement; Motor coordination; Piano practicing; Practice organization.

Encouraging motivation for piano practice: The role of self-efficacy, deliberate practice and achievement motivation in piano pedagogy

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Background

This paper reviews research dealing with motivation in studying music. Research in psychology and music education revealed positive correlations between self-efficacy and achievement (McCormick & McPherson, 2003). Deliberate practice was found to be strongly related to expert performance (Ericsson, Krampe and Tesch-Romer, 1993). The knowledge about motivational strategies is important for piano students and their teachers in piano pedagogy. Empowerment, motivation and independent learning are key principles for meaningful and profitable practice (Paul Harris, 2014). In the 21st century the physical nature of preparing to play a musical instrument is also very important (Murray McLachlan, 2017). All these topics are related to modern piano pedagogy.

Aims

The aims are to analyse the motivational strategies of piano students for daily practising and their self-efficacy development. Understanding the psychology of music is very important in teaching an instrument. Observing motivation, self-efficacy and deliberate practice, piano teachers must know how to guide their piano pupils and students at music schools and academies.

Main contribution

To observe research findings about importance of motivation, deliberate practice and self-efficacy in teaching piano pedagogy. The main contribution is the conclusion that without knowledge about deliberate practice and precise practice methods, there is no accomplishment in self-efficacy of piano students, nor good progress in learning and playing the piano.

Implications

The present paper proposes a knowledge of different kinds of motivation and important facts of self-efficacy of piano students in practising the piano. Many implications are important for all: piano pupils, students and their teachers. Motivation and independent learning are key principles to becoming a concert pianist achieving expert performance empowerment. All these topics are important to improve teaching in piano pedagogy.

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Keywords: motivation, self-efficacy, piano students, deliberate practice, achievement motivation

Oral session 11 **Music and perception**

Classroom 324, 3rd floor

Chair: Una Mikac

Vincent d'Indy's Concept of "Significant Keys" Through the Psychology of Perception of the Fin de Siècle Era: Constructing a "Complex" Sign in Music

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Background

This paper examines the correlations between algorithms of semiosis, implemented by Vincent d'Indy in his concept of "significant keys" (Indy, 1930: 50-51), and the ideas concerning musical semantics, resulting from theories of psychology of perception created by the composer's contemporaries (Riemann, Helmholtz, Lavignac). This aspect of d'Indy's theoretical legacy has not yet been the subject of study, although mentioning his reliance on the tradition of key semantics (Ishiguro, 2010: 114-116) and the problems of sense-making in his late opuses (Fulcher, 1990: 295-296), (Buch, 2006: 31-35).

Aims

The purpose is to establish d'Indy's methods of constructing a *complex sign* based on a set of musical means as the *signifier*, taking into account d'Indy's use of a key as a "central point" for semiosis and "rhythmic", "harmonic" and "melodic" cells as supplements, reinforced by timbral specifics and by the acoustic laws of tension and resolution, established due to the psychology of perception.

Main Contribution

Adhering to the "music-as-language" paradigm and developing the Renaissance idea of a correlation between the "movements of the soul" and the elements of music (Indy, 1909: 384-385), d'Indy expands its possibilities to transmit also ideas. If a leitmotif or a melody akin to Wagner's "endless melody" is suited for conveying a *lasting* "*feeling*", then a key that causes an *instant* reaction, like the dominant tone in painting (according to Delacroix, Baudelaire, Van Gogh), is suitable for *simultaneously* evoking a specific *idea* in the consciousness. D'Indy's system of "significant keys", built in relation to his own dramatic works, Wagner's operas, Franck's oratorios (due to Franck's synesthetic reactions), relies on the flat-sharp opposition of keys, developed by the baroque composer Mattheson and later by Riemann and Lavignac. As its correlate, we consider Ch. Blanc's theory of impact of complementary colours. D'Indy consolidates contradictory ideas with "oppositional" keys; enhances the effect of tonal "colour" by selecting leit-timbres, rhythmic and harmonic formulas, relying on binary opposition (strings/winds; chromatics/diatonics). Constructed on the basis of a key, a complex of expressive means functions as a *semantic leitmotif*.

Implications

Considering the concept of significant keys in light of the psychology of perception helps to determine: 1) d'Indy's semiosis algorithm; (2) parallels between the algorithms of perception in music and painting; (3) difficulties in perceiving d'Indy's music, as evidenced by his contemporaries; (4) d'Indy's contribution to musical semantics in the final stage of the "music-as-language" paradigm.

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Keywords: Vincent d'Indy, the sharp-flat principle, musical semantics, significant keys

Exploring the use of virtual reality to depict the synaesthetic percepts of a music composer

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Background

Seeing colours and shapes in movement while listening to or imagining music is a phenomenon experienced by a sub-group of people who have synaesthesia. Synaesthesia is a rare perceptual condition in which the stimulation of one sensory or cognitive pathway leads to an automatic, involuntary experience in a second sensory or cognitive pathway (Cytowic, 1989). While rare, synaesthesia occurs more frequently in populations of arts professionals and people involved in the creative industries (Rich, Bradshaw, & Mattingley, 2005; Rothen & Meier, 2010). Current research into the multimodal experiences of synaesthetes often relies on verbal or two-dimensional descriptions. However, based on the self-reports of synaesthetes, music-induced synaesthetic perceptions are often experienced in fluid movement and in three dimensional peripersonal space (Glasser, 2018; 2022). These methods are therefore unable to adequately capture the complexity of synaesthetic responses to music.

Aims

This project aimed to model the phenomenological aspects of music-related forms of synaesthesia in Virtual Reality (VR), to increase understanding of the impact of synaesthesia on artistic identities and processes. Given the affordances of immersive technologies such as VR to provide the requisite modalities to more validly exemplify the synaesthetic experience, this project also aimed to explore whether a virtual environment enhanced our ability to capture music-induced forms of synaesthesia and engage with multisensory immersive artistic experiences.

Method

A data and art (d/art/a) driven methodology was employed to provide a framework within which data and art are resulting outputs of equal importance and validity. For this project, this methodology included d/art/a captured through semi-structured interviews to interrogate a composers' lived experiences of synaesthesia, and through three dimensional visual representations of synaesthetic percepts (induced by the composer's music) captured and manipulated in the VR application, *Tiltbrush*. The composer-participant in this study was a graduate researcher at a leading tertiary institution.

Results

Emerging themes from the interview process include the validation of VR as an intuitive, immersive, interactive, and inspired tool for the capture of synaesethetic percepts. Working in VR was also reported to have the potential to alter the compositional process in an iterative way.

Conclusions

The development of an immersive virtual environment for the exploration of synaesthetic experiences provides a rare opportunity to create a virtual multisensory environment that is both capable of increasing empirical research in this domain and also provide creative opportunities that capture the intersectionality and confluence of the arts.

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Keywords: Synesthesia/synaesthesia, music, virtual reality (VR), d/art/a, composition.

Music Notation-to-Colour Synesthesia and an Alternative to Müller's "Law of Specific Nerve Energies"

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Background

Music notation-to-colour synesthesia is one of the many possible variations of a neurodivergence whereby the individual experiences automatic, consistent, involuntary concurrent visual sensations of colour when exposed to the visual stimulus of a musical note (Solá Chagas Lima, 2015; 2019; 2020). This neurodivergence poses an exception to Johannes Müller's "law of specific never energies", challenging its core principle. Müller's law it is still studied and used today in the field of psychology (Rachlin, 2005, p. 43). The law proposes that there are no commonalities between the quality of a perceived object and the actual sensorial perception of that object in the brain (p. 43).

Aims

This theoretical paper explores Müller's law, considering its implications for synesthetic perceptions of music-notational stimuli. It revisits the narratives and other qualitative data from a parallel grounded theory study (Solá

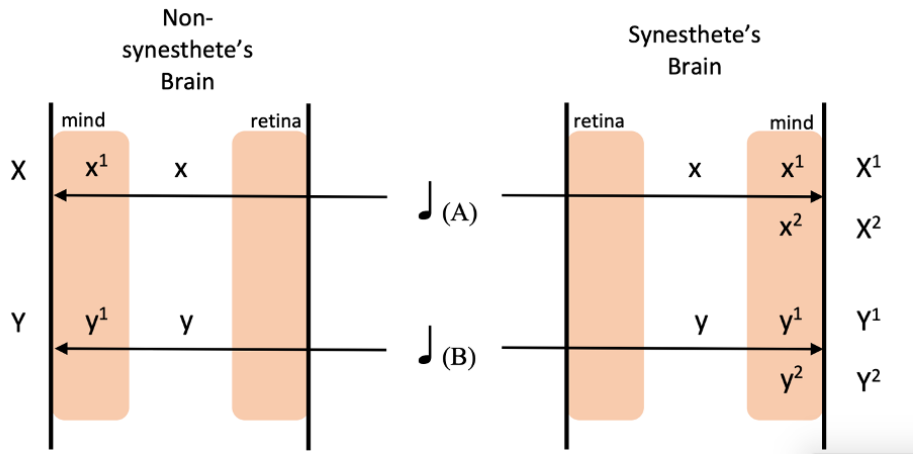
Chagas Lima, 2020) with the intent of exemplifying how Müller's theory may be insufficient in describing the perceptual process of music notation on the part of music notation-to-colour synesthetes.

Main Contribution

Figure 1 shows Müller's law, in an elaboration of the graphic representation (Rachlin, 2005) of the perceptual process of visual inputs. Rachlin suggests that a visual stimulus, when passing through the respective sensorial organ and processed in the mind, yields a singular sensation. In the context of the present abstract, according to Rachlin, a musical note (A, for instance), as represented in a visual concept notated on a page of music, would be processed in the brain as "$x \rightarrow x^1$" and ultimately cause the sensation "X" that the brain would associate with the idea of that musical note. Consequently, Müller's law would remain consistent for any another musical note: $B \rightarrow y \rightarrow y^1 \rightarrow Y$, and so forth.

Figure 1

Visual elaboration of Rachlin's (2005) representation of Müller's law (p. 42, 44).



A recent study (Solá Chagas Lima, 2020) suggests otherwise, however, proposing that concurrent sensations, at a cortical level, can be multiple and multimodal, thus challenging the single-tier approach in Müller's law. Music notation-to-colour synesthesia elicit two or more sensations associated with a perceived stimulus (Solá Chagas Lima, 2020).

Implications

A given musical pitch (A) notated on a page, in this case, may be perceived by the appropriate sensorial organ (eyes; vision) and elicit multiple sensations in the brain: $A \rightarrow x \rightarrow x^1 \rightarrow X^1$; or $A \rightarrow x \rightarrow x^2 \rightarrow X^2$; or $A \rightarrow x \rightarrow x^n \rightarrow X^n$. The same holds true for other musical notes (B, for instance): $B \rightarrow y \rightarrow y^1 \rightarrow Y^1$; or $B \rightarrow y \rightarrow y^2 \rightarrow Y^2$; or $B \rightarrow y \rightarrow y^n \rightarrow Y^n$. In other words, perceived visual stimuli (music-notational element or graphic input) can elicit multiple sensations and may involve more than one brain area (Ward, 2013), thus eliciting more than one concurrent sensation.

Conclusions

Concurrent synesthetic sensations are normally consistent throughout a synesthete's lifetime, and it is hypothesized here that it may pose challenges and advantages in the process of music-learning (Ward, 2013; Solá Chagas Lima, 2015; 2019; 2020). This conference paper explores the quality of their experience, as collected, analyzed, and discussed in a parallel study (Solá Chagas Lima, 2020), exemplifying the exception they pose to Müller's law. It revisits qualitative data, concluding that this neurodivergence impacts music perception.

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Keywords: music notation, music synesthesia, synesthesia, music perception, law of specific nerve energies.

The Role of Emotional Congruence in Emotional Perception and Recognition of Song Lyrics

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Background

Emotional congruence between music and lyrics contributes to the intensity of perceived emotions (Brattico et al., 2011), suggesting a differential emotional effect of lyrics and music. Both sad and happy music lyrics contribute to the perception of sadness and happiness in listeners (Ali and Peynircioglu, 2006). However, no previous studies investigated what role emotional incongruence in music has on listeners.

Aim

The aim of this study was to explore the effects of emotional incongruence with lyrical music and what effect this incongruence has on emotional perception and memory (recognition of lyrics).

Method

Four sets of original lyrics were coupled with eight original melodies (composed based on guidelines from Juslin & Laukka, 2004) to either match the emotional tone of the lyrics (congruent condition) or represent an opposite emotion (incongruent condition). 32 adult participants (69% female) were asked to rate the emotional valence of the stimuli, the singer's emotional state, and report how many words they recognize after listening to each song.

Results

While congruent music tends to be recognized as sad and happy by the majority, there is no difference in emotional rating between emotionally incongruent songs (all *ps* > .211), with the average ratings ranging between 2.4 and 2.9. However, the variance was larger with the ambivalent songs.

A repeated measures ANOVA revealed no significant differences in correctness rates among the eight songs, $F(7,248) = 1.195$, $p = .306$. Participants equally well-recognized words from all of the songs, but the overall correctness rate was not high (3.3 words out of 6 on average).

Participants clearly differentiated the emotional tone of the melody and the lyrics, even when it comes to ambivalent songs. There were significant differences in understanding how the singer was feeling, $F(2, 96) = 56.44$, $p < 0.001$. Emotionally congruent songs elicited clear emotional perception (happy or sad), while emotionally incongruent songs elicited ambivalence.

Conclusions

The results revealed that emotionally congruent music was more easily emotionally perceived by listeners. However, emotionally incongruent music led to ambiguity, as participants struggled to attribute a specific emotion. Despite this ambiguity, participants could differentiate between the emotional tone of the melody and the lyrics, suggesting separate processing of music and lyrics. Emotional congruence did not significantly affect participants' ability to recognize the lyrics. These findings highlight the importance of emotional congruence in shaping listeners' emotional experiences and the complex interplay between music and lyrics in conveying emotions.

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Keywords: emotional congruence, emotional perception, music cognition, recognition

Oral session 12 **Music training**

Huml Hall, 4th floor

Chair: Nikolina Matoš

Listening to music pieces in ear-training: Experiences about the music, the lesson and knowledge acquisition

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Background

Ear-training in the Croatian primary music school focuses on mastering rhythm and intonation. Listening to music pieces is sometimes included in the lessons, usually at the end, and it is predominantly analytical. Another possibility is to include cognitive-emotional music listening in the lessons, that is to listen to one music piece several times during a lesson and link listening to other musical (e.g., singing, playing instruments) and extra-musical activities (e.g., learning about the historical background of the piece, discussing emotions expressed by the music). Cognitive-emotional music listening is multimodal and interdisciplinary and has been shown to positively affect knowledge acquisition, liking of lessons and music (Vidulin et al., 2023; Žauhar et al., 2023).

Aims

We examined the effects of the teaching approach in ear-training on music-induced activation, music liking, liking of the lesson and acquired knowledge.

Method

The participants were 321 second-graders from music schools (61.1% female; M_{age} = 9.54, SD_{age} = 0.92). They participated in an ear-training lesson on upbeat prepared according to the standard approach (STA, N = 149) and the cognitive-emotional approach (CEA, N = 172). An excerpt from Ponchielli's *Dance of the Hours* was listened to in both approaches. In the STA, the piece was listened to only once, at the end of the lesson. In the CEA, the piece was listened to several times. Immediately after listening to the piece in the last part of the lesson, the pupils completed the Geneva Emotional Music Scale (GEMS-9, Zentner et al., 2008) and a knowledge test. They also reported how much they liked the music and the lesson.

Results

Two-way ANOVAs were conducted to examine the effects of gender and teaching approach in ear-training on music-evoked activation, music liking, liking of the lesson, and knowledge acquired. The music moderately evoked activation, and no main effects were observed. For music liking, there was a main effect of gender (F(1, 310) = 8.51, p = .004), showing that girls liked music more than boys. For liking the lesson, the main effects of gender (F(1, 307) = 6.86, p = .009) and teaching approach (F(1, 307) = 4.67, p = .031) were significant. Girls reported liking the lesson more than boys, and pupils in the CEA liked the lesson more than those in the STA. Knowledge of the lesson did not differ concerning gender and teaching approach, but teaching approach affected knowledge of the music, (F(1, 312) = 9.35, p = .002). Knowledge of the music was higher among pupils that attended CEA.

Conclusions

The results of this study confirm previous findings on the benefits of integrating cognitive-emotional music listening into ear-training.

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Keywords: cognitive-emotional music listening, music-evoked activation, music liking, knowledge, ear-training.

Students' perspectives on ways to include preferred musical genres in solfeggio classes

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Background

According to the curriculum for the secondary music schools, musical genres are most represented in the teaching areas of solfeggio such as music creativity and listening to music (Ministry of Education, Science, and Technological Development of the Republic of Serbia, 2020). Therefore, as part of the study course Directions and Methods of Pedagogical Research the idea of conducting empirical research on implementing genres in all teaching areas was devised. The adapted MUSIC model was used for genre classification (Rentfrow et al., 2011).

Aims

This research aims to explore the opinion of high school music students about the advantages and disadvantages of including musical genres in solfeggio classes.

Method

Qualitative research was conducted in Belgrade and Užice on 100 secondary music school students in the third and fourth grades. Considering socio-demographic variables, musical preferences, feelings that would arise from the inclusion of a preferred genre, and arguments against their introduction into teaching, a questionnaire adapted to high school age was used for data collection. The research was conducted at the end of April 2023 in the premises of music schools. The data were processed using the computer program MAXQDA to analyze the respondents' responses.

Results

The results show that the favorite genres among the respondents are: pop, folk and hip-hop/rap music, with a clear demographic distribution of preferences. Most respondents see the possibility of implementing genres in the teaching area of musical creativity, sight-singing and rhythm. Data analysis shows that the introduction of preferred genres would create a positive atmosphere in classes. Suggested activities include: music analysis, singing, rhythmic reading... Although most respondents believe that there are no negative sides to the

introduction of genres, some students pointed out possible obstacles such as disagreements among students due to different tastes and inappropriate song lyrics.

Conclusions

Research findings suggest the need to modify the solfeggio teaching program to use musical genres in all teaching areas. This change could contribute to the development of musical abilities and students' motivation through singing, rhythmic reading, interpretation, perception and aesthetic experience of music. Furthermore, it is believed that such a change would help students to understand a broader perspective about music in contemporary society.

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Keywords: musical preferences, solfeggio.

Examining the effects of isolated musical chords on memory formation: Contrasting impacts of major versus complex chords

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Background

The effects that music exerts on learning and memory are diverse and, at times, inconsistent (Ferreri & Verga, 2016). Stripping down musical harmony into its building blocks, namely discrete chords, might help researchers focus on specific musical elements related to the consonance-dissonance continuum, as well as perceived pleasantness (valence), and acoustical elements such as sound roughness (Smit et al., 2020.). At present, there is limited understanding regarding the impacts of isolated musical chords (used as background stimuli) on simultaneous learning, which constitutes the focus of the present study.

Aims

The current study aims at examining how the perception and roughness of different types of single isolated musical chords may affect the formation of (unknown) word-image paired-associates.

Method

50 participants were recruited for a 2-day experiment involving the presentation of German word-image pairs alongside either various types of chords differing in complexity or silence. On the second day, participants matched the correct image to each word and offered subjective evaluations of the musical chords. Another eye-tracking experiment was conducted on 42 participants to gauge changes in pupil dilation during passive listening to the same chords used in the primary experiment.

Results

Our findings demonstrate a relationship between chord type and memory performance, such that major chords were detrimental to learning, whereas complex chords were associated with increased subsequent memory performance. In addition, valence and tension mediate the relationship between the roughness of chords and overall memory performance, indicating that acoustic elements corresponding to the consonance-dissonance continuum are perceived differently, affecting memory for concurrent associations.

Conclusions

The current findings may have implications for using auditory stimuli in learning contexts, particularly when learning the vocabulary of a new language. According to our findings, acquiring new information in the presence of music consisting mainly of major chords may be detrimental to memory, while utilizing somewhat irregular musical stimuli that contain dissonant elements as background material for learning could enhance associative memory formation. It should be noted, however, that in actual music, chords are presented within a specific musical context, and the same musical chord can elicit different affective responses depending on the relevant musical context (Lahdelma & Eerola, 2016).

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Keywords: chords, musical tension, memory, tonality, musical context

Perception, Experience and Singing Capabilities: A case study of developing aural skills in Musicology students

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Background

The relationship between experience, practice and musical perception has been the subject of intense research for decades in the fields of Music Cognition, including on topics such as rhythm and tempo perception, memory, emotion, while the relationship with musical aural training has emerged more slowly, as Butler complained in 1997. Recently, however, there has been several studies that connect aural training with new perception research (Buonviri, 2021, Fournier et al., 2019, Ponsati et al, 2016 and others) and this paper presents a new case study on the topic, focusing on the development of musical perception in Spanish Musicology students.

Aims

The main aim of the study is to study the relationship between musical aural training and the changes in perception of certain musical elements in adult college students. In addition, the impact of different types of musical habits and reported self-confidence will be discussed in relation to the perception results.

Method

This study will analyse the relationship between the regular use of aural training apps (for ex. *Earbeater*) and changes in the perception of certain musical elements (pitch, rhythm, texture, timbre, structure and harmony) in adult university students enrolled in Musicology (n=6). The perception data was collected through perception surveys, exam results, a group discussion, self-reports regarding training apps and auto-evaluation before and after the aural training (3 months). The perception data was compared to data collected from exams and auto-avaluation for the entire first-year Musicology student population (n=60).

Results

This study is still on-going, but the number of hours spent on the aural training apps seems to effect the changes in musical perception, while previous musical experience and reported self-confidence is expected to also influence the final results.

Conclusions

The findings from this study have the potential to further our understanding of how new technological tools impact the musical perception, as well as the impact of self-confidence on the development of the musical ear in young adults. This research has clear implications for music-educational settings, especially regarding college education, and for the field of music perception in general.

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Keywords: Case study, Music Students, Perception, Aural training.

14:00 – 15:40: **Parallel oral sessions 13 – 15**

Oral session 13 **Singing and playing**

Stančić Hall, 4th floor

Chair: Jasmina Mehulić

1. Omer Raz, Neta Maimon, & Zohar Eitan: Verbal Imagery and Vocal Timbre: Production and Perception
2. Francesco Venturi: From "What to do?" to "What happens?": Voice training between somatics and metaphor
3. Scott Beveridge, Gerard Breaden Madden, Steffen A. Herff & Hans-Christian Jabusch: Muscle electrophysiology in drumming: The characteristics of wrist muscle activation patterns are predicted by drummers' level of experience
4. José Rui Fernandes Pedroso & Maria Bernardete Castelan Póvoas: Characterization as a motor skill of a right-hand stroke on the classical guitar technique: regulatory conditions and action goals
5. Marija Podnar, Matthias Bertsch & Christoff Zalpour: Instrumentalists with asymmetric playing postures – Health issues, prevention and physiotherapy

Oral session 14 **Processing recent music**

Classroom 324, 3rd floor

Chair: Ivor Prajdić

1. Laura Farré Rozada: Testing Conceptual Simplification: A New Method for Analysis, Learning and Memorisation of Post-Tonal Piano Music
2. Ana Rebrina & Thomas Wozonig: Reflected intuition: Statistical and musical implications of a listening experiment in post-tonal music
3. Tijana Ilišević: Sound mass music in the light of cognitive transmedial narratology
4. Mathilde Callac: Musicians confronting the challenges of contemporary music practice. The case of the spectral repertoire
5. Anders Reuter: The uncanny materiality of pop music's topological timbre

Oral session 15 **Music and well-being**

Huml Hall, 4th floor

Chair: Diana Olčar

1. Shaopei Zhang & Raymond MacDonald: Music Performance Anxiety in Chinese Conservatories: A Quantitative Analysis of Symptoms and Contributing Factors
2. Serena Paese, Hauke Egermann & Andrea Schiavio: Current prevalence of MPA among students and professional musicians, and popularity of meditation as an approach to alleviate it. A survey study.
3. Shaopei Zhang & Raymond MacDonald: Health and well-being of adolescents in school-based orchestras—A general model proposal
4. Natalija Stanković & Blanka Bogunović: Participating in a project with practical stage experience: Effect of situated learning on young opera singers' well-being
5. Diana Olčar, Ana Butković & Majda Rijavec: Individual and group flow as predictors of momentary well-being after chamber recital

Oral session 13 **Singing and playing**

Stančić Hall, 4th floor

Chair: Jasmina Mehulić

Verbal Imagery and Vocal Timbre: Production and Perception

Omer Raz[1], Neta Maimon[1], Zohar Eitan[2]

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Background

Verbally induced imagery (e.g., "bright" vs. "dark" sound) is widely used in describing musical timbre, consistently associating with both its perceptual and physical dimensions (McAdams, 2013; Wallmark, 2019; Zacharakis, Pastiadis, & Reiss, 2012). However, the impact of employing verbal imagery in real musical contexts, like a choir rehearsal, on features of the produced musical timbre remains largely unexplored. For example, how would features like the spectral centroid (associated with sound "brightness") be affected when singers are instructed to produce a "dark" versus a "bright" sound?

Aims

We investigate the effects of verbal imagery on timbre in choral performance by examining specific acoustic attributes. We also examine whether such effects are perceived by listeners (musicians and non-musicians), such that they successfully correlate musical sounds with the verbal images used to evoke them. This addresses a broader issue: how figurative language, often used to describe musical sound, can influence production.

Method

In Experiment 1, twelve singers were recorded in a choral-like setting, responding to six sound descriptors, which included three contrasting pairs: bright/dark, flute-like/cello-like, and head voice/chest voice (descriptors chosen based on a preliminary questionnaire among choir conductors). We analyzed the resulting sounds for three spectral attributes: RMS (root-mean-square pressure, related to loudness), spectral centroid, and singer's formant cluster. In Exp2, sixty participants (15 singers, 15 other musicians, 30 non-musicians, none of which participated in Exp1) listened to the recordings from Exp1 and matched each sound to its descriptor or antonym, rating their confidence in each match.

Results

Exp1 showed significant differences in RMS levels for all antonym pairs, indicating loudness as a crucial attribute in interpreting verbal imagery. The spectral centroid was primarily affected in the bright/dark contrast; the singer's formant cluster showed no significant differences for any descriptor pair. In Exp2, all participants' groups, excluding one descriptor x group combination, achieved accuracy above chance in matching sounds to verbal imagery. The highest accuracy and confidence were observed with the brightness imagery. Singers demonstrated superior accuracy over other groups, and interestingly, other musicians and non-musicians had similar accuracy rates.

Conclusions

Verbal imagery significantly shapes the production of musical timbre, altering specific acoustic parameters and overall sound quality in measurable ways. Associations between timbre and verbal imagery are perceptible to listeners regardless of musical training. However, training in the relevant musical medium (here, singing), rather than musical training generally, improves perceptual accuracy. Highlighting figurative language's role in shaping

musical sound production, this study adds to our understanding of the interplay between music and language, with implications for musical education, training, and performance.

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Keywords: Timbre, Music performance, Singing, Music & Language, Verbal Imagery.

From "What to do?" to "What happens?": Voice training between somatics and metaphor

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Background

Using metaphor in voice training is widely recognized for aiding students in developing vocal skills and musical understanding (e.g., Kar, 2021; Skoog, 2004). However, the effectiveness of metaphors in accurately conveying vocal mechanics, associated sensations and emotions warrants careful consideration despite their recognized benefits. Integrating or deconstructing vocal practices hidden behind nuanced metaphors may pose a challenge for the training singer. This underscores the critical need for clear communication and mutual understanding between teacher and student to navigate the potential pitfalls and ensure metaphors effectively facilitate learning rather than hindering it.

Aims

This study aims to: (1) analyze the role of metaphors in singing pedagogy, focusing on their psychological functions; (2) identify consistent psychophysical principles across different metaphors in apparently contrasting vocal styles and traditions; and (3) integrate findings with contemporary metaphor theory (Rossi and Macagno, 2021; Schmid, 1998; Jensen, 2006) to assess implications for music education and vocal performance.

Method

A comparative analysis of the metaphorical language used by Guillermo Bussolini (Italian opera singing) and Margaret Pikes (Wolfsohn/Hart tradition)— embodying two explicitly contrasting pedagogical traditions—based on my direct trainee experiences under both mentors. Additionally, the study integrates these observations with reports from fieldwork as a voice trainer and reflections on performing artistic outcomes. Common metaphors include "appoggio" or "singing from the back of your head," which are widespread but can vary significantly in interpretation and effectiveness. Less typical metaphors might involve imagery like "to pull in the oars" or "pushing the wall". Understanding these metaphors about one another helps to clarify the psychophysical principles they aim to convey.

Results

Despite differences in metaphor choice, both approaches fundamentally align on the same psychophysical realities, focusing on drawing awareness towards different feelings of resonance and breath support, challenging the notion of a divide between two explicitly contrasting pedagogical traditions. Furthermore, the research suggests mutual benefits between opera singing and experimental techniques, proposing that a reciprocal exchange of insights could significantly enrich both fields. Cross-pollination can enhance the understanding of vocal mechanics and expand the expressive capabilities within each discipline. Crucially, the locus of this exchange is the lived experience, centering on the sensations of the trainee singer. This emphasis foregrounds issues of well-being and highlights the responsibility of teachers.

Conclusions

The findings advocate for a judicious use of metaphors in voice training. Emphasizing the lived experience—the immediate, tangible, and subjective sensations the trainee feels—over metaphorical cognition can demystify vocal production principles. We advocate for a training approach informed by somatics focusing on the inner perception and bodyly experience, emphasizing body awareness and movement for psychophysical development. This approach stresses the exploratory question "what happens?" over the prescriptive "what to do?", fostering a deeper, experiential learning process, akin to practices in other performing arts, moving away from traditional, directive vocal training methods.

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Keywords: Voice education, Metaphor, Somatics, Embodiment, Transformative learning

Muscle electrophysiology in drumming: The characteristics of wrist muscle activation patterns are predicted by drummers' level of experience

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Background:

High performance drumming requires excellent motor control, acquired and refined throughout musical practice. Therefore, drummers who vary in experience are ideal for studying training-related changes in muscle activation patterns (Beveridge, 2020; Fujii, 2012). One useful tool for assessing such activation patterns is Spike Shape

Analysis (SSA), which examines characteristics of the spikes in surface electromyography (sEMG). SSA has been used to characterise, e.g., abnormal motor unit activation patterns in neuromuscular disorders (Muro, 1982) and neuromuscular adaptation after dynamic training in healthy individuals (Gabriel, 2001). SSA has been used in musical contexts to describe differences in muscle activation patterns between the "World's Fastest Drummer" and individuals with regular- or no-drumming experience (Fujii, 2009; Fujii, 2012). So far, whether SSA findings in drummers are training-related or the result of individual physiology is unclear.

Aim:

This study examines the relationship between Mean Spike Frequency (MSF: one of the SSA measures) and Cumulative Life Practice time (CLP) in a group of drummers with varying experience levels.

Methods:

Eleven expert and eleven amateur drummers performed five uni- and bi-manual drumming tasks at five different tempi. During these tasks, the activity of the flexor carpi ulnaris (FCU) and the extensor carpi radialis (ECR) was measured using sEMG. SSA was performed on these electromyographic signals to identify the MSF, defined as the number of spikes per second. Drummers also completed a musical biography questionnaire, providing information about their CLP, a retrospectively self-reported estimate of total life practice time in hours. The data were analysed using a Bayesian linear mixed effects model where CLP was the target variable and MSF a possible predictor.

Results:

Data analysis for this project is ongoing and will be complete at the time of presentation. The preliminary findings from our Bayesian model indicated that higher MSF predicts higher levels of CLP (Est = .12; Evidence Ratio (ER) > 1000, where an ER > 19 is considered strong evidence for an effect).

Discussion:

We found higher mean spike frequency to predict longer cumulative life practice time. This suggests that the long-term training drummers undertake over many years may contribute to changes in muscle activation patterns.

Conclusion:

The observed relationship between MSF and CLP suggests practise may lead to tangible differences in wrist muscle physiology, including the frequency of muscle spike activity. Our current findings and ongoing analysis may contribute to understanding training-related muscular adaptation in drummers. Possible implications of such adaptations concerning performance optimisation will be discussed.

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Keywords: Drummers, Electromyography, Motor Control, Muscle Activation, Spike Shape Analysis

Characterization as a motor skill of a right-hand stroke on the classical guitar technique: regulatory conditions and action goals

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Background

The development of technical mastery is a representative stage of the training of a professional musician, especially for those focused on performance. Given the extent and nature of the challenges characteristic of instrumental action, theoretical and practical strategies of interdisciplinary inspiration are established as complementary resources to the musician's training. A recurrent approach in this context involves conceptual associations with the field of motor learning, in which movements can be understood as components of the skills that organize them.

Aims

We propose the characterization of an isolated right-hand stroke in the classical guitar technique as a motor skill in terms of its objectives and regulatory conditions. The choice of this element is related to the importance of the moment of string release for the constitution of the produced sound characteristics.

Method

For this characterization, an exploratory investigation was conducted through a bibliographical approach, stablishing connections between the fields of motor learning and guitar technique (Carlevaro, 1979), considering the physical parameters of the interaction between the finger and the string during the stroke. Initially, we distinguish between the movements that make up a given action and the motor skill being performed (Magill; Anderson, 2017) through objective of action and regulatory conditions. Then we consider parameters of interaction between the finger and the string (Pavlidou, 1997), seeking to strengthen our elaboration with a physics background. Considering those theoretical ideas in perspective to the guitar technique, it was possible to establish four objectives and three regulatory conditions for an isolated stroke.

Contributions

The regulatory conditions are related to the instrument's physical properties, representing the material limits for the performance of the action: resistance of the string, amplitude of vibration; and lateral distance between strings. The objectives of the action, in turn, are linked to the parameters that most influence sound production and can be deliberately controlled: String displacement, Width of the contact point, Assurance of the parameters; Postural control.

Implications

We hope to contribute to a better understanding of this technical component and to offer the instrumentalist a conceptual framework that allows him to evaluate the motor aspects of his technique, regardless of the technical school practiced. In this sense, the concepts of regulatory conditions and objective of the action allow us to contextualize the parameters of interaction with elements of the instrumental technique, which can serve as a reference to consider the movements available at a given stroke. This formulation favors a comprehension of instrumental technique as a motor skill. Not only as patterns of movements to be performed but considering the objectives to be achieved through the actions.

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Keywords: Classical Guitar, Motor Learning, Instrumental Action, Right-hand technique.

Instrumentalists with asymmetric playing postures - Health issues, prevention, and physiotherapy

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Background

International studies indicate the musicians' need for efficient prevention of playing-related musculoskeletal issues whose lifetime prevalence ranges from 62% to 93% (Kok et al., 2016). The competitive pressures associated with musical performance, frequent prolonged playing in non-optimal postures, and the deficit of specifically designed support may increase musicians' physical and mental discomfort.

Aims

This study examines potential health benefits of physiotherapy exercises for musicians (Chan et al., 2014) and/or the use of Kinesio®-Taping (Karatas et al., 2011) in addressing playing-related musculoskeletal issues. The effects of two physiotherapy interventions were investigated in conjunction and each as individual intervention.

Method:

The study included 36 violin/viola and flute players aged between 18 and 64 consisted of five professional musicians and 31 music students who were randomly assigned into one of four research groups:

1. **C**ontrol **G**roup (**CG**=9 ♀)
2. **P**hysio**T**herapy Exercises Group (**PT**=7 ♀/2 ♂)
3. **K**inesio®-**T**aping Group (**KT**=8 ♀)
4. Group with both interventions (**PK**=7 ♀/3 ♂)

Self-reported pain and stress characteristics were collected via questionnaires. Functional performance of the cervical spine and tolerance to pressure/pain on certain Trigger-Points were measured using motion capture equipment and digital algometer. Posture was digitally documented in posterior-anterior view. ANOVAs, *t*-tests, and correlations analyses were calculated using statistical program 'jamovi 2.3.28'.

Results:

34 participants (16 violin/viola ("high-string") players and 18 flute players) completed the study, including pre- and post-assessments. There were two dropouts (CG 9 ♀-1=8 ♀ and PT 7 ♀-1=6 ♀). Significance level was set at $p<0.05$. The *t*-test results show significant pressure/pain tolerance changes at specific Trigger-Points in **PT** and **PK**. **KT** showed significant changes in functional performance of the cervical spine. **CG** had overall no significant changes. The ANOVA results indicate non-significant interactions in the intervention groups, while the post-hoc tests revealed statistically significant improvements in pressure/pain tolerance at the final examination time in flute instrumentalists. However, the results remained statistically unchanged for the high-string instrumentalists.

Pain was frequently reported in different body parts. Pearson's correlation showed a significant positive relationship between pain intensity, pain interference and stress.

Conclusions:

Physiotherapy exercises for musicians and applied Kinesio®-Taping were well received. The results suggest that both interventions could provide ongoing support for specific musculoskeletal issues among instrumentalists, given the time commitment of the musician. This study has highlighted some postural differences and varying effects in two instrumental groups and the urgent need to address applied healthcare for musicians.

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Keywords: Musicians, Physiotherapy, Kinesio®-Taping, Prevention, Healthcare

Oral session 14 **Processing recent music**

Classroom 324, 3rd floor

Chair: Ivor Prajdić

Testing Conceptual Simplification: A New Method for Analysis, Learning and Memorization of Post-Tonal Piano Music

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Background

There is a gap in music performance, education and psychology regarding memorization training for post-tonal piano music. Despite the repertoire spanning over 100 years, pedagogues and professionals still lack effective tools for developing this skill (Soares, 2015). Existing research focused on observing practitioners' practising behaviors, to understand their preparation for a memorized performance (Chaffin et al., 2010; Fonte, 2020). However, a memorization method is not provided (Chaffin et al., 2002; Farré Rozada, 2023). Furthermore, other important aspects such as the role of sleep for memory consolidation; influential parameters for performance (e.g., perfect pitch, sight-reading); or the role of emotions are rarely examined or simply omitted.

Aims

We present the findings of testing with recruited pianists some strategies of Conceptual Simplification: a new method for analysis, learning and memorizing post-tonal piano music, informed by mathematics and computer science (Farré Rozada, 2023). Participants memorized four excerpts, either using their own strategies (control group) or following a series of instructions (experimental group), recreating the implementation of Conceptual Simplification for the given excerpts. Additionally, the study evaluated whether the suggested strategies could be useful for the participants' daily performance practice, either as a new approach or mixed with their regular working methods. We also aimed at testing how the given instructions influenced the experimental group results in comparison to the control group; and the influence sleeping between recalls.

Method

Conceptual Simplification is tested with conservatoire piano students and recent graduates, divided into a control group and an experimental group, based on the results of a previous questionnaire evaluating their musical and educational background, memorization strategies, and experience with perfect pitch, synesthesia, sight-reading, emotions, sleep and mental practice. Participants were asked to perform from memory all excerpts in three recalls: 1) after practice and without sleep, 2) without practice and without sleep, and 3) without practice and with sleep. After each recall, participants were interviewed to further evaluate their experience. Thematic analysis was applied to the transcribed semi-structured interviews, while audio-recordings were assessed qualitatively and quantitatively.

Results

The most successful participants in the control group implemented Conceptual Simplification strategies on their own. However, since they had no instructions on how to memorize using Conceptual Simplification, they were more successful than their group peers, but less than the experimental group. The method's strategies worked well in combination with the participants' usual memorization strategies, and most participants found it easier to recall the excerpts after sleeping.

Conclusion

Conceptual Simplification requires no previous scientific training to be successfully implemented and works for different learning styles and complexity types. It also presents enough flexibility for other practitioners to incorporate additional strategies, adapting it to their needs. Conceptual Simplification's systematic approach toward engaging conceptual memory and reasoning leads to more confident memorized performances, needing less repetition during practice.

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Keywords: analysis, learning, memorization, Conceptual Simplification, post-tonal piano music.

Reflected intuition: Statistical and musical implications of a listening experiment in post-tonal music

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Background

Following psychological and theoretical research on listening strategies in post-tonal music (Deliège et al., 1996; Lock, 2020; Utz, 2023), we have designed a listening experiment (n = 120) to understand how post-tonal sounds are organized in the process of listening. Previous empirical research has primarily concentrated on case studies (Phillips et al., 2020; Deliège, 1989). To broaden the area of investigation, our study intends to encompass a wider range of post-tonal styles. The experiment consists of 23 post-tonal compositions, which differ in terms of duration, genre, era, and complexity.

Aims

The aim of the experiment was to investigate how structures in post-tonal music are perceived and to investigate the difference in perception at the very first listening, and after repeated listening. To understand these differences, we intend to identify, formalize, and relate the experiment's results to musical contexts.

Method

The listening experiment consisted of two steps: first, participants were asked to mark (by real-time tapping on a keyboard) and rate (1–3) "important events" during an uninterrupted listening of pieces. Second, participants relistened the pieces with the option to pause, rewind, or fast-forward to a specific section. Here, the task was to revise the first step by moving, deleting, adding, or rerating markers. Data from both steps is evaluated using various statistical tools (e.g., cluster analysis), and the results of the first and second steps are compared.

Results

Most participants adhere to their first impression and make relatively minor revisions (shifts < 1 sec). As a result, clusters that formed around certain events in the first step tend to "tighten" in the second.

The second step seems to lead to reconsidering the importance of events once participants have listened to them in the context of the whole piece. Some events are considered less important (markers are deleted), while others are only taken into account during the second listening (markers are added). On average, more markers are added than deleted in the second step. These events, which were provoked only by relistening, are often ambiguous processes or transformative events. In our paper, we particularly focus on these events that are marked after reflection.

Conclusions

The differences between the two steps highly depend on the musical context. Two tendencies emerge from it: relatively clear segmentation points become "clearer" in the second step by adjusting the markers (clusters become more compact), and ambiguous local processes become "more ambiguous" by adding new markers and expanding the area of an event.

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Keywords: post-tonal music, perception, first listening impression, repeated listening

Sound mass music in the light of cognitive transmedial narratology

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Background

This paper begins with the premise that narrative and its categories are transmedial phenomena. Simultaneously, these concepts are considered high-level cognitive schemas acquired through previous experience and stored in long-term memory. In the process of narrativization of the musical text, the analyst interprets textual signs and organizes them to construct mental representations of the narrative and its categories. In this process, the analyst inevitably utilizes, expands, and adapts existing cognitive schemas to organize and interpret new information. Consequently, the act of reading a piece of music as a text possessing narrativity (Ryan, 2005) is approached in a transmedial and cognitive manner.

This paper is based on the analysis of selected works by Edgard Varèse (*Intégrales, Hyperprism, Octandre*), Witold Lutosławski (Symphony No. 2, *Livre pour Orchestre, Double Concerto*), and Krzysztof Penderecki (*De natura sonoris No. I, De natura sonoris No. II, Dimensions of Time and Silence*). In these works, composers utilize sound masses as areas defined by pitch, register, and instrumentation, serving as the fundamental building blocks of structure. By elucidating the temporal nature of the analyzed works, the paper further delves into exploring their narrative potential, with sound masses as the primary agents of actions.

Aims

The paper addresses how and to what extent sound mass music can activate universal narrative patterns. Post-tonal music is characterized by processes directed towards unpredictable goals. It is the type of music where the most significant chain of events is established not between consecutive events but rather between separated ones. Faced with the unpredictability of goals, various interruptions, and discontinuities, and observed in situations where the linear progression of time is not straightforward but instead is "reordered", the concept of multiply-directed linear time (Kramer, 1988) as the predominant temporal category of this music type implies a duality of temporal dimensions. The primary objective of the research is to explore how this multiple temporality of post-tonal music can be interpreted in the context of manifesting its narrativity and the interplay between story time and discourse time.

Main Contribution

This research emphasizes the importance of cognitive processes in recognizing and comprehending multiply-directed time and the logic of double temporality. Discontinuities, interruptions, and redirections of goal-directed processes cannot be understood without the mental synthesis of musical events. This involves a cognitive process of merging non-chronologically presented events into a causal, chronological sequence. Thus, becoming acquainted with the multiple temporal logic of the analyzed works through the act of mental configuration itself serves as a strategy for overcoming the heterogeneity of time. It represents an act of constructing the plot of these works in a Rickerian manner. Concurrently, the paper also explores the potential of the specific poetics of the plot (Pejčić, 2019), and the opportunities for its methodological application in the act of listening and analytical interpretation of the analyzed music.

Implications

An interdisciplinary approach of this nature offers opportunities for interpreting analyzed works through specific semantic plot types they exemplify: agonistic, ludic, and ritualistic. Consequently, it establishes a solid foundation for further research that could readily incorporate insights from other disciplines, enriching its hermeneutic profile even further.

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Keywords: sound mass, temporality, linearity, cognitive transmedial narratology

Musicians confronting the challenges of contemporary music practice. The case of the spectral repertoire.

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Background

Learning contemporary repertoire is a challenge for professional musicians. For example, playing the spectral repertoire requires reading new technical cues (Kanno, 2007) not always taught in postgraduate courses. Furthermore, this repertoire uses microtonality (Orcalli, 2013) to represent pitch in a spectral rather than tonal context (Lalitte, 2013) while the musician playing Western music is used to equal temperament (Bailes, 2015). Some challenges with this repertoire have already been proved (Nonken, 2023). However, to our knowledge, there is no data on the strategies musicians use to work with this repertoire and on its practice's impact on the musicians' technique and physical and mental condition.

Aims

This study provides an initial overview of these issues from a musicologist's perspective, with data enabling psychologists to help musicians required to perform this repertoire.

Method

We conducted a semi-structured field survey with 15 expert musicians. The first part questions how the musicians met this repertoire and if they were sensitive to it before playing it. Musicians are also asked to indicate how long they have been playing this repertoire and whether this work is done daily. The second part aims to understand whether musicians have used sources other than scores (e.g. lectures or reading books) to learn to play this repertoire. The third part focuses on the technical points on which musicians must improve the quality and precision of their performances. Here, the questionnaire focuses on string players, as the most representative panel in our sample, detailing each aspect for the right hand (pressure on the bow, bow attacks on the string) and the left hand (vibrato, fingerings for playing microtonality). Our third part's final objective is to learn whether technical demands impacted the musician's psyche, the management of physical pain and the desire to excel. The musicians had to answer with a closed response.

Results

The results show that this repertoire is very difficult to sight-read. Similarly, the musicians expressed difficulties in easily perceiving microtonality. The data show that 100% of string players were forced to rework their left-hand technique to achieve microtonal fingerings. Although they admit it, the musicians enjoy the challenge presented by this repertoire.

Conclusion

In addition to these results, it should be noted that the musicians expressed the pleasure of physically feeling the sounds, which can attest that the spectral repertoire is embodied. This had already been studied in the literature and the questionnaire author did not think that this data was highly experienced. However, the predominance of this data obliges us to raise it. We also note that research in music and psychology can only be done with the active participation of professional musicians to bring to life the complexity of expert instrumental practice.

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Keywords: Contemporary music, music strategies, challenges, motivation, music performance

The uncanny materiality of pop music's topological timbre

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Background

Pop music has experienced a heightened "timbrecentrism" with the integration of digital programming practices (James, 2015, p. 39). These new practices are characterized by the dispersion of human compositional agency and technological agency, affording a mediatized sonic space that challenges traditional notions of source bonding, signification, and interpretation (D'Errico, 2022)

On a similar note, Cornelia Fales (2002) argues that the concept of timbre, characterized by its elusive and preattentive nature, extends beyond traditional notions of sound sources. Another timbre scholar, Isabella van Elferen (2017), describes how timbre is both material and immaterial and that paradox engenders a sublime aesthetic experience of being drawn towards something seemingly real and material, yet beyond comprehension.

Yet, we we still know very little about how timbre actually works – and even less so in the context of digital pop music.

Aims and main contribution

This presentation aims to contribute to new understandings of pop music aesthetics on its own terms by investigating its increasing basis on timbral staging. It therefore delves into the precognitive elements of timbre, linking them to the algorithmic processes of contemporary pop production and argues how this gives rise to a preconscious uncanniness.

The presentation will do so by taking inspiration from Rosalyn Krauss' (1998) exploration of material uncanniness in minimalist art. The paper further utilizes theory on timbre, psychoanalysis, semiotics and music production.

Musical analysis will be employed, including Kylie Minogue's "Padam Padam" (2023), with a focus on specific music production techniques. These include spatial staging, dynamic control, and low-pass filtering to demonstrate how they contribute to shaping a mediatized space and uncanny sonic materiality.

Implications

Traditional musical analysis parameters such as tonal complexity, signification and meaning apply less to contemporary pop music. This could account for why pop is often deemed qualitatively secondary compared to other musical genres.

Ultimately, pop music's timbral perspectices including its uncannyness has substantial implications for our understanding of the evolving nature of pop music's precognitive affects and aesthetics.

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Keywords: Pop music, music production, timbre, sonic materiality, uncanny

Oral session 15 **Music and well-being**

Huml Hall, 4th floor

Chair: Diana Olčar

Music Performance Anxiety in Chinese Conservatories: A Quantitative Analysis of Symptoms and Contributing Factors

Shaopei Zhang, Raymond Macdonald
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Background

The phenomenon of music performance anxiety (MPA) within conservatories is a significant concern (Williamon & Thompson, 2006). While some studies have investigated MPA among Chinese music students (Yang et al., 2022), there is still a lack of empirical data on MPA among students from the 11 music conservatories in China.

Aims

This study aims to assess the physiological and cognitive symptoms of MPA among students from all 11 music conservatories in China authorized by the Ministry of Education to implement independent admissions. It also explores factors contributing to music performance anxiety. Additionally, the study examines the differences in MPA symptoms based on gender and years of study. Integrating Barlow's anxiety model (2000) with the Chinese context, the study also investigates the influence of parents, teachers, and peers on MPA.

Methods

The study included 262 undergraduate and postgraduate music performance students from eleven Chinese conservatories. Data were collected through an online questionnaire using a Likert-type rating scale to rank the frequency of various symptoms and contributing factors. The reliability and validity of the data were verified using SPSS 24.0. Cronbach's alpha values for the scales were all above 0.8, indicating high reliability. The KMO values were above 0.8, and Bartlett's test of sphericity was significant ($p < 0.05$), confirming the validity of the data. Descriptive statistics, the Mann-Whitney U test, and the Kruskal-Wallis H test were used to analyze gender differences and the impact of years of study on MPA symptoms and factors.

Results

The most frequently reported physical symptoms of MPA among Chinese conservatory students were shallow breathing or rapid heartbeat, trembling of the limbs, and cold hands or feet. The most common cognitive symptoms included fear and restlessness. Significant factors contributing to anxiety about music performance were high self-imposed pressure, lack of confidence, and fear of negative comments. Females reported higher frequencies of these symptoms, particularly "cold hands or feet," "shallow breathing or rapid heartbeat," and "low emotion." Additionally, females reported being more affected by "strict requirements and expectations from parents" compared to males. The study also found that students with more years of music study experienced fewer symptoms of "lack of confidence" and "peer pressure."

Conclusions

The findings reveal high levels of both physical and cognitive symptoms of MPA, with a prevalence rate of 94.7%. The study highlights the significant impact of high self-imposed pressure, lack of confidence, and fear of negative comments on MPA. Special attention should be given to the influence of strict parental expectations, especially among female students.

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Keywords: Music Psychology, Music Performance Anxiety, Conservatory, Students

Current prevalence of MPA among students and professional musicians, and popularity of meditation as an approach to alleviate it. A survey study.

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Background

A great deal of research has focused on studying music performance anxiety (MPA) and the approaches to overcome it (Kenny, 2011). Among these tools, meditation appears to be promising for the positive impact showed in previous studies (Czajkowski et al., 2020; Diaz, 2018; Paese & Egermann, 2024).

Aims

This study aims to investigate the current prevalence of MPA among students and professional musicians, and whether meditation is used to overcome this problem, with an overview of other approaches used.

Method

A questionnaire consisting of 10 questions on demographics, education, live music performance experience, instrumental specialties, MPA experience and tools used to overcome it, was emailed to universities and music conservatories and accessible through Qualtrics. The Performance Anxiety Inventory (Nagel et al., 1981) was used to measure the level of MPA among participants. The study received ethical approval from the University of York.

Results

The results showed that out of 768 musicians who completed the questionnaire, 60.8% reported to suffer or have suffered from MPA. Among the most used tools to overcome MPA is psychological therapy (40.7%), while still few musicians are familiar with meditation (11.2%). Subsequently, a Kruskal Wallis test was conducted to reveal any correlation between the variables investigated and MPA levels, and a multiple regression showed which of the employed approaches were found to be predictors of MPA.

Conclusions

Results showed that MPA is still a prevalent problem for students and professional musicians, and that the most popular approach to overcome MPA is psychotherapy while meditation is uncommon. A multiple regression showed that psychotherapy is a predictor of higher levels of MPA while meditation is not a significant predictor. This result opens reflections on the topic, and could suggest that musicians who suffer more severely from MPA use psychological therapy more frequently. The persistence of MPA among musicians, despite decades of study and the myriad of tools known to manage it, suggests that further study and action are still needed to provide adequate support for this issue. Moreover, the limited use of meditation suggests that this effective tool for

emotional regulation and awareness growth could be disseminated further, perhaps including it in the educational curriculum of universities and institutions that want to support the comprehensive training of future musicians.

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Keywords: *Music performance anxiety, meditation, psychotherapy, musicians' health and wellbeing.*

Health and well-being of adolescents in school-based orchestras—A general model proposal

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Background

McFerran (2012) noted that active engagement in musical activities could help overcome personal obstacles, especially when combined with a supportive group environment. This might occur, for example, when students take part in organized music programs within schools. Welch et al. (2020) observed observed that previous research on the benefits of music engagement for health and well-being has relatively neglected the health and well-being of school-based orchestras. If school-based orchestras form a significant part of organized music engagement in schools, they could significantly contribute to the development of adolescents' health and well-being. Considering the important role of music engagement in the developmental stage of adolescents, it is necessary to understand and evaluate the health and well-being of adolescents' engagement in school-based orchestras. This research proposes five components for analyzing and evaluating the music and well-being of adolescents in school-based orchestras based on the PERMA model and applied psychology (Seligman, 2013; Davidson and Krause, 2017). These components include positive emotions (adolescents experience emotions such as hope, contentment and love in the orchestra), engagement (adolescents' joyful experience and love of participating in the orchestra), positive relationships (adolescents' relationships with others when participating in the orchestra), meaning (adolescents' understanding of why they participate in the school-based orchestra and the benefits of participation) and accomplishment (personal fulfilment and experience of success).

Aims

This study aims to analyze the key factors affecting the health and well-being of adolescents participating in school-based orchestras, identify the current challenges faced by school orchestras, and provide references for the development of school-based orchestra programs that meet the health and well-being needs of adolescents.

Main Contribution

The study contributes for both music psychology and its areas of application (e.g. music education). This is because the study will fill a gap in existing research on the health and well-being of adolescents in school-based orchestras. It will provide scientific and empirical evidence for the development of future music education policy.

Implications

Helping marginalized groups, such as adolescents who are discriminated against or excluded on the basis of gender, age, physical ability or playing ability, to become active in music will contribute to the health and well-being of this group. As O'Neill (2011) concluded, music engagement will give people a way to express themselves and enjoy improved emotional and spiritual functioning.

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Keywords: Music Psychology, Health and Well-Being, School-based Orchestras, PERMA Model, Music Engagement

Participating in a project with practical stage experience: Effect of situated learning on young opera singers' well-being

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Background

Research on professional musicians from the point of view of positive psychology shifts focus from the adverse effects of being a professional musician to determining what positively affects a musician's well-being (Ascenso et al., 2016). As far as the well-being of opera singers goes, the research has been done with already professionally established ones (Cupido, 2016) but not with students. The transition from conservatory to professional engagement can be facilitated by situated learning in opera productions, enhancing the acquiring of the necessary competencies (Dullea, 2017). It is essential to determine how participative learning affects the well-being of singing students and helps them integrate better into professional life.

Aims

The research aims to discern the obstacles to young opera singers' well-being and determine how participating in a project with practical stage experience helped them increase their sense of well-being.

Method

Eight semi-structured interviews were conducted with questions corresponding to the five-component PERMA model (Ascenso et al., 2016) in the follow-up study. The participants were eight young opera singers who had little or no practical stage performance experience before taking part in the Opera: Past, Present, Perfect! Project. They were interviewed six months after the end of the project. Thematic analysis was applied to the transcripts of interviews (Braun & Clarke, 2006), first coding segments with specific meanings and then grouping them into several themes.

Results

The thematic analysis revealed four themes: 1) stage experience/acting, 2) interpersonal relations, 3) work attitude, and 4) sense of achievement and development. Each theme highlighted a specific part of singers' professional lives, in partial consent with the PERMA model. Lack of stage experience caused self-doubt and anxiety, which changed to positive emotions when taking part on stage during the project. The second theme emphasized the importance of communication, support, and honesty, from others. Regarding work attitude, participants spoke of individual dedication and the importance of working with equally dedicated colleagues. Finally, the interviewees talked about a sense of professional and personal development.

Conclusions

Situated learning through participation in a project with practical stage experience proved to increase the feeling of well-being, activating all of the five components of the PERMA model. Singers' answers also showed that the activation of one component had affected the activation of the others. Aside from acquiring stage experience as early as possible, it seems that young singers would appreciate a learning environment that promotes greater dedication to work, open communication, and relationships based on respect and appreciation.

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Keywords: well-being, opera singers, situated learning, participative learning

Individual and group flow as predictors of momentary well-being after chamber recital

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Background

Flow is a highly enjoyable state of effortless concentration in which people are so involved in the activity at hand that nothing else seems to matter (Csikszentmihalyi, 1990). In academic context flow was found to be related to various positive outcomes, including progress through the school curriculum, better achievement and higher well-

being (Rijavec & Ljubin Golub, 2018). Flow is not only an individual state, but can also emerge during group activities. Although musical activities are often inherently collaborative, flow experiences in musical settings and its relationship with well-being have been mainly researched at individual level (Tay et al., 2019).

Aims

The aim of this study was to assess the relationship between individual and group flow experienced in chamber recital with levels of happiness and satisfaction immediately after the recital.

Method

The data were collected after the chamber music colloquium on a sample of 200 students of the Academy of Music (63% females) with an average age of 21.41 (SD = 2.72) years. Immediately after the recital, the participants filled out the 8 items measure of individual and group flow experience (modified Short Flow Scale, Rheinberg et al., 2003) and two one-item measures assessing happiness (affective well-being) and satisfaction (cognitive well-being).

Results

Results of two hierarchical regression analyses revealed that experience of individual flow was significant predictor of happiness (affective well-being), while both individual and group flow significantly predicted satisfaction (cognitive well-being). Neither gender nor age were significant predictors of happiness and satisfaction.

Conclusions

These results point to the different importance of individual and group flow experiences for affective and cognitive well-being of music students following chamber recital. Individual flow may be important for musician's momentary happiness, but experience of both individual and group flow is necessary for feeling of satisfaction which is crucial for further motivation.

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Keywords: chamber recital, flow, group flow, momentary well-being, musicians

16:10 – 17:30: **Parallel oral sessions 16 – 18**

Oral session 16 **Piano collaboration**

Stančić Hall, 4th floor

Chair: Katarina Habe

1. Linda Mravunac Fabijanić: Measuring Collaborative Pianists' Competencies
2. Taiur Fontana & Maria Bernardete Castelan Póvoas: Music reading skill in collaborative piano context: optimizing attention resources through automatism
3. Katarina Babnik & Katarina Habe: The role of work-related factors in the performance anxiety of accompanists working in primary and secondary music schools
4. Cecilia Oinas: "Am I too loud?" Politeness, impoliteness, and empathy in Lieder playing

Oral session 17 **Music and culture**

Classroom 324, 3rd floor

Chair: Jelka Vukobratović

1. Robinson Giraldo Villegas: Creating, reinterpreting and disseminating Colombian Andean music
2. Alissa Settembrino: Music as Additional Blue Zone Attribute: A Sound Ethnography of Nicoya, Costa Rica
3. Robinson Giraldo Villegas, Jordi Albert Gargallo & Miguel Corella Lacasa: Colombian oral tradition music: Interpreter, his cultural context and culturally informed interpretation
4. Jelena Glišić Matović: Echoes of Empowerment: Revealing Gender Dynamics and Cultural Narratives in Popular Music Through the Opus of Aleksandra Prijović

Oral session 18 **Music, movement, affect**

Huml Hall, 4th floor

Chair: Ana Rebrina

1. Sandra Fortuna: The Role of Bodily Interaction in Children's Music Perception
2. Riikka Ahokas: The Training of the Musical Rhythm; From Perception to Skill
3. Justin Kerobo & Ico Bukvic: Exploring the Intersection of Affect and Musical Engagement to Define Affective Computing in Musical Collaboration
4. Marco Susino, William Forde Thompson, Emery Schubert & Mary Broughton: Emotional Responses to Music: The Essential Inclusion of Emotion Adaptability and Situational Context

Oral session 16 **Piano collaboration**

Stančić Hall, 4th floor

Chair: Katarina Habe

Measuring Collaborative Pianists' Competencies

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Background

Collaborative pianists prepare and perform music pieces with singers, instrumentalists or ensembles and in the music school/academy setting, should have artistic, pedagogical and specific collaborative piano competencies. Considering vocal/instrumental teachers' roles in classrooms, a conceptual framework of competencies has been developed (AEC, 2010). However, research on collaborative pianists' competencies is rare in Croatia.

Aims

The aim was to design an instrument for measuring collaborative pianists' competencies during collaborative piano lessons in Croatian music schools/academies, and to examine the differences in respondents' opinions depending on study major, age, gender, and year of study.

Method

In a pilot study, 88 students of the University of Zagreb Academy of Music (age 16-32; M = 21.28, SD = 2.77; 52 female, 36 male; 19 vocal, 21 string, 35 wind/brass department, 13 other) filled out an online questionnaire, "Collaborative pianists' competencies", created based on previous findings of qualitative content analysis (Mravunac Fabijanić, 2021). Respondents rated the initial 73 items categorized into five categories (AEC, 2010) on a 5-point Likert-type scale.

Results

Multiple factor analyses (PCA, Varimax rotation), with exclusion of items with nonsignificant (< .50) and multiple loadings, resulted in factorability of data (KMO = .882). The questionnaire (30 items) showed high reliability (α = .95), explaining 64.675% of the variance, as did four factors: Performance and artistic (α = .92), Communication and pedagogical (α = .89), Facilitation (α = .88), and Reflective practitioner (α = .88).

Respondents valued Performance and artistic competencies the most (tempo adjustment, excellent performance of melody and phrasing, musical engagement), followed by Communication and pedagogical competencies (signalling and breathing as forms of non-verbal communication), in line with previous research (Wildschütz, 2018), and by Facilitation (psychological stability, appropriate behaviour before performances, personal approach) and Reflective practitioner competencies (flexibility, quick reactions).

A gender-based difference in respondents' opinion on the overall scale of competencies has been found, $t(86) = -2.13$, $p < .05$, with higher results in females (M = 4.5) than in males (M = 4.3). One-way analysis of variance, Tukey HSD and Scheffé post–hoc test showed statistically significant differences on the Facilitation competencies subscale, $F(2, 85) = 2.66$, $p < .05$, between the 16-19 (M = 4.43, SD = 0.45) and the 20-22 (M = 4.00, SD = 0.85) age groups, where the latter group achieved higher results.

Conclusions

The "Collaborative pianists' competencies" instrument is representative of the theoretically defined competencies, has high structural validity, and is recommended for application to a larger sample of students.

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Keywords: collaborative pianist, competencies, music education, pilot study

Music reading skills in collaborative piano context: optimising attention resources through automatism

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Background

The study unfolds the results achieved in theoretical research whose multidisciplinary methodology led us to consider aspects of collaborative piano career (Adler, 1965), music cognition and motor control areas since they provide fundamental biases to investigate music reading skills proficiency in collaborative piano contexts. Considering the attention capacity, some psychological components converging in a music-reading task and their attributes were discussed while limiting the source of cognitive potentialities according to Kahneman (1973). Likewise, it investigated how attentional focus can be employed while reading some excerpts of pieces from the collaborative piano repertoire. Afterwards, we brought up the subject of attentional regulation through automatism, which means performing tasks without employing a full attention effort. This concept was explained as a habit, conditioned reflex and chunking ability (Sloboda, 2008). Automatism in music reading is achieved when collaborative pianists identify larger units rather than isolated events throughout the musical discourse, in addition to the reading practice of issues such as splitting attentional focus between different voices. Automatism can become a conditioned reflex (Magill, 2017) through practice when the pianist establishes precisely which physical and motor components he or she will employ to play a specific musical structure, regarding conducting their practice using always the chosen physical and motor apparatus.

Aims

The main objective was to elicit how improvement in music-reading can be reached, from the point of view of the collaborative pianist, through regulation of the attention capacity by introducing automatism using a cognitive-motor mechanism of optimizing attentional resources and relieving its workload.

Main contribution

It was possible to point out that automatism is an efficient issue of controlling attentional resources (Logan, 1998) since it allows attention capacity to become more available to focus on further performance issues such as

expressive and emotional content. For this reason, the more the assimilation of the score occurs automatically without spending efforts on attention (automatism reduces attentional demands drastically), the more the collaborative pianist can concentrate in sharing music ideas with their music partner in terms of reciprocity issues such as synchronization, phrase shaping and other aspects to be considered in chamber music performance.

Implications

It is possible to argue that some level of automatism is always required to reach desirable outcomes in music-reading. The improvement of collaborative piano proficiency depends on music-reading skills acquirement, which is improved by automatism development and refinement. In high levels of automatization, motor control also becomes automatized, conformed to the cognitive processes of optimizing attentional efforts while the motor control refinement brings to automatism higher quality and specificity, since it reaches grown levels of precision in the movements of the physical component involved in music reading.

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Keywords: Collaborative piano. Music reading. Capacity of Attention. Automatism. Performance improvement.

The role of work-related factors in the performance anxiety of accompanists working in primary and secondary music schools

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Background

Studies on factors that contribute to performance anxiety focus primarily on individual characteristics of musicians - self-evaluations and traits (Fernholz et al., 2019). Factors related to the work environment are not often the subject of research. One theory that explains employee well-being factors is the Job Demands–Resources theory (Bakker & Demerouti, 2017).

Aims

The study aimed to investigate work-related factors associated with performance anxiety in accompanists working in formal music schools in Slovenia.

Method

We conducted a cross-sectional study among academically trained pianists employed in Slovenian primary and secondary schools who fulfil the role of accompanist. The study included 95 regularly employed piano teachers/accompanists (75% women, *M age* = 41.5; *SD* = 10; *min* = 25 years, *max* = 61 years). Participants completed a series of scales, including scales on perceived work characteristics (Llorens-Serrano et al., 2020) and

an adapted scale on performance anxiety (Kenny, 2009), along with questions on demographic and objective work characteristics. We performed a construct validation of the scales and conducted a multiple linear regression analysis of the factors of music performance anxiety.

Results

The multiple linear regression model of perceived work characteristics (perceived quantitative and emotional workload, work pace, role conflict, and perceived work quality), objective work characteristics (number of competition participations), and years of professional experience (F = 11.8, p < .001) explained 58% of the variance in music performance anxiety. Merely all variables included had significant predictive power (p < .05), with perceived work pace being the only variable without predictive power ($ß$ = - .19; t = -1.72; p = 0.09).

Conclusions

The research findings confirm that it is important in future studies to examine work environment factors in relation to music performance anxiety and personality traits and emotional states, particularly in musicians who work in organised systems or who are not completely independent in planning and executing their work. Further research is needed on more representative samples and in other music professions.

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Keywords: music performance anxiety, work-related factors, accompanists, music schools.

"Am I too loud?" Politeness, impoliteness, and empathy in Lieder playing

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Background

Playing successfully in a classical music ensemble requires so much more than instrumental skills: to be able to adapt, listen and to initiate, while at the same time maintaining high technical level in performance (see e.g. Keller 2014). And yet, competitiveness, different personal temperaments, cultural backgrounds, or simply different style of playing can create mistrust and misunderstanding between ensemble members. This paper draws inspiration from an interdisciplinary study branch called politeness research (see e.g. Jucker, Hübscher & Brown 2023, 1–2) applied in linguistic studies.

Aims

The presentation considers how politeness may be examined within musical performance, in situations when we find other's playing impolite in some way, such as too loud dynamics, too fast/slow tempo, not respecting the

written notation, or a combination of these. As a case study, three songs for voice and piano will be examined where the composer has written dominating material for the piano throughout. These are Sergei Rachmaninoff's "Daisies" (Margaritki), op. 38 no. 3, Gabriel Fauré's "Clair de lune", op. 46, no. 2, and Kaija Saariaho's "Attente" from *Quatre instants* (2002)). The reason for choosing *Lieder* genre is that it offers a special dichotomy between the pianist and the singer: on the one hand, the singer is usually considered the soloist whom the pianist "accompanies". Yet at the same time the piano part can be highly virtuosic and include independent material. For instance, in both Fauré and Saariaho the pianist plays a considerable part of the beginning alone and the singer only joins in later on while in Rachmaninoff the global high point of the song happens only in piano solo at the end.

Method

This paper considers the roles of the pianist and singer both with the help of music analytical methods and semi-structured interviews and suggests that to successfully perform these songs, the roles and power structures between the pianist and singer are constantly changing. While my methodology includes close musical readings of the written scores, I take a standpoint where musical structure is not fixed but rather emerges during the particular act of analyzing, listening, or performing the work (Lochhead 2015).

Results

One of the features we find in all songs is the considerable number of pitch-based unisons, which has more recently been suggested as creating both sonic and performative bonding (Oinas 2023). This could potentially mean that while the piano part's virtuosic material can be played very dominantly, in reality there are many subtle ways how to blend in with each other.

Conclusions

While the research is still very tentative, to make traditional music analysis and performance research interact with politeness studies can show new interesting angle points on phenomena that have not been widely discussed within classical music performance.

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Keywords: performance research, music analysis, politeness research, ensemble communication, Lieder

Oral session 17 **Music and culture**
Classroom 324, 3rd floor
Chair: Jelka Vukobratović

Creating, reinterpreting and disseminating Colombian Andean music

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Background

Proposal developed at the Universidad Industrial de Santander [UIS], a Colombian public entity. The UIS in its Institutional Development Plan proposes the approach "Democratization of knowledge for social transformation and the achievement of good living with a territorial approach", which seeks to articulate the University with the State, society and the productive sector. In this regard, the UNESCO world report, 2005, proposes the term "Knowledge Societies", attributed to the constant evolution of society and its permanent access to information. It also states that knowledge transfer processes cannot ignore elements such as local knowledge or cultural contexts, an idea that Castro (2018) reaffirms when mentioning the importance of taking into account the needs or interests of the community.

Aims

Visibilize artistic creation processes of the Universidad Industrial de Santander in Bucaramanga schools through didactic concerts based on Colombian music, promoting articulation with society.

Method

We sought to document the musical repertoire and the interaction with the participating schools. Therefore, it was based on Mejía (2015), who proposes some uses and approaches to systematization. The first one "obtaining knowledge from practice", seeks to find the distance between theory and practice. It means that the knowledge obtained can be used to improve the systematized practice or experience. The second, "dialectical systematization", is based on the fact that the knowledge elaborated is a process that starts from practice and must return to it in order to improve it and achieve its communicability.

On the other hand, and as García (2017) states, since this was an artistic research based on practice, it allowed the improvement of the praxis itself, in addition to putting knowledge at the service of progress, this, with the intervention in the participating schools and the contribution to the musical repertoire of the bass trombone.

Results

- Creation and recording of eight (8) musical works for bass trombone and piano.

- Performance of three (3) educational concerts in schools in the metropolitan area of Bucaramanga.

- Dissemination of the project in different national and international events.

Conclusions

Educational systems and state policies seek strategies that favor access to information and support the joint resolution of social, economic, innovation and technology problems, as stated by Spain's Cotec Foundation in its latest report on the evolution of I+D in Spain and Europe.

Colombia's new free education policies improve resources for higher education and I+D processes. For its part, the Universidad Industrial de Santander has established new objectives in its policies, facilitating the creation and implementation of artistic proposals aimed at society.

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Keywords: Colombian music, artistic creation, knowledge transfer, social articulation, bass trombone.

Music as Additional Blue Zone Attribute: A Sound Ethnography of Nicoya, Costa Rica

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Background

Known for its history of balanced diets, exercise, healthy social practices, and high population of elders and centenarians, Nicoya, Costa Rica is one of our world's five Blue Zones and is currently the only designated Blue Zone in Latin America. Since the Blue Zones were founded by National Geographic fellow Dan Buettner in 2007, numerous works have been published about these five zones to promote secrets to physical longevity and living longer lives (Hitchcott et al, 2018).

Aims

While this ethnography is specifically dedicated to the Nicoyan communities, this study has potential to add information to what constitutes a region as a Blue Zone. With these contributions to understanding the Blue Zones, this work can also encourage further inquiry about the relationships between human longevity and involvement with music and sound.

Method

Ethnographic qualitative methods include 32 collaborative semi-structured interviews, compilation of field notes written in narrative form, and observations of elder Nicoyans in their communities. Several of the narrative accounts in this study also capture soundscape qualities of both Nicoya's ambient and music making environments; soundscapes include those of open fields, farming, and jungle.

Results

This ethnographic case study of Nicoya, Costa Rica reveals that interaction with sound can be another potential contributing factor to the Blue Zone quality of living. Such engagement practices include playing musical instruments and dance. Instruments include the acoustic guitar, marimba, and voice, and are often played with

children or grandchildren to further foster intergenerational bonds and sociality (De Vries, 2012; Nedelcu, 2018). Songwriting, as well as writing and/or reciting poetry was also observed and have strong emotional and cognitive connections to optimize one's well-being (Wassilwizky et al, 2017). In addition to music-based practices, Nicoyans also use sound as a sensorial practice to guide everyday tasks such as cooking and land cultivation.

Conclusions

If we extend Buettner's existing research to the existing connections between music and aging, it is possible to see that diet and exercise are not the only contributing factors. Aside from their Blue Zone characteristics, Nicoya, as well as the other four zones, deeply value the functions of music and sound in their communities. These engagement practices positively contribute to Nicoyans' physical, mental, and emotional well-being.

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Keywords: aging, Blue Zone, music, longevity, well-being.

Colombian oral tradition music: Interpreter, his cultural context and culturally informed interpretation.

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[1]Universidad Industrial de Santander, Bucaramanga, Colombia. [2]Universitat Politècnica de València, Valencia, Spain. [3]Global Institute for Music Research, Spain

Background

This is a doctoral thesis proposal of the Art: Production and Research program of the Polytechnic University of Valencia, whose objective is to study musical interpretative approaches based on socio-cultural contexts. Through collaborative creation research processes, Colombian folklore works for solo bass trombone will be commissioned, taking as a starting point music of oral tradition. The musical repertoire created will be the main input with which the study stage will be developed with the focal group, in this case, bass trombonists.

Aims

To study the interpretative approaches of a group of bass trombonists according to the socio-cultural contexts through the work of the musical repertoire created.

Method

Two approaches to the scientific method are fundamental. The first, ethnographic, allows us to know in detail people or communities, their interactions, behaviors or beliefs. It gives importance to what the participants say, their experiences, thoughts and reflections as they express them (Orozco, 2003). The second, case study, allows

defining the number of units of analysis, understanding and analyzing details and meanings that will later be systematized under the guidance of authors such as Mejía (2015) and his proposal of systematization as obtaining knowledge from practice.

Expected results

- To record the musical repertoire created and to promote its diffusion in academic and artistic events.

- To create a pedagogical theoretical corpus resulting from the study of interpretative approaches.

Conclusions

Culturally informed musical interpretation favors the study and interpretation of a repertoire (Suez, 2020). The aim is to obtain information on the interpretative approaches taking into account the creative perspective of the interpreter, as proposed by Robert (2012), based on the sociocultural contexts of the participants and the work of the repertoire created. On the other hand, it is expected that involving Colombian oral tradition music will contribute to its consolidation as a musical style and theoretical framework.

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Keywords: Colombian music, artistic creation, knowledge transfer, bass trombone, informed interpretation.

Echoes of Empowerment: Revealing Gender Dynamics and Cultural Narratives in Popular Music Through the Opus of Aleksandra Prijović

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Background

This theoretical article explores the layered field of reception and interpretation of popular music lyrics (Negus, 2012), elucidating their role both as mirrors that reflect social dynamics and as active factors that shape social relations. Drawing on identity theories and cultural studies, content analysis and thematic coding are used to identify the prevailing narratives within popular music and to discover the ways in which they reflect or shape cultural norms, especially when it comes to gender relations and traditional family paradigms. The focus is on the wide popularity of Serbian folk singer Aleksandra Prijović in the sociocultural landscape of the former Yugoslavia (Petrov, 2015).

Aims

As a case study, we take the phenomenon of wide popularity of the Serbian folk singer Aleksandra Prijović in the sociocultural context of the former Yugoslavia (Rasmussen, 1995). Relying on feminist theory, we examine the

reflection of gender dynamics and the potential message of women's empowerment in the musical opus of Aleksandra Prijović, shedding light on how her lyrics reflect, shape, or call into question patriarchal social patterns (Wald, 1998). Using a sociolinguistic perspective, we explore how linguistic choices reflect and contribute to cultural biases. Analyzing the semantics of the lyrics accompanying the music, which often seem to revolve around the themes of love, betrayal and female resilience, we assess to what extent these narratives influence audience identification and contribute to the artist's popularity.

Main contribution

By exploring the semantic layers of the texts that accompany the music performed by Aleksandra Prijović - we assess to what extent these narratives encourage audience identification and contribute to the artist's popularity. In addition, we examine the complex interplay between popular music lyrics, gender bias, family constructs, and cultural identity, thus encouraging further exploration of music's transformative capacity when it comes to social paradigm changes, collective meaning-making and social cohesion.

Implications

Operating at the nexus of psychology, musicology, and societal inquiry, this paper furnishes insights into the intricate ways in which popular music mirrors and molds cultural perceptions and individual identities (Dibben, 1999). Crossing theoretical perspectives and case studies, this article offers insight into the complex ways in which popular music reflects and shapes cultural perceptions and identities, particularly when it comes to gender relations and family relational paradigms in post-Yugoslav societies, deepening our understanding of a complex area at the intersection of psychology, music, and society.

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Keywords: music, post-YU societies, semantics, gender, Aleksandra Prijović

Oral session 18 **Music, movement, affect**

Huml Hall, 4th floor

Chair: Ana Rebrina

The Role of Bodily Interaction in Children's Music Perception

Sandra Fortuna

Conservatory of Music, Frosinone, Italy

Background

Moving to the music is not merely a reactive bodily response to the music, but a means of focusing, selecting, and reinforcing the salient cues of the music (Kozak 2015). The role of body movement in the musical processing of the listener is increasingly investigated within the embodied music cognition paradigm (e.g., Leman, 2007) and in the educational context (Bremmer & Nijs, 2024)

Aims

Within this theoretical framework, the present research investigated how and to what extent a body movement versus a verbal interaction with music could influence the listening process of untrained music listeners.

Method

To address this issue, an experimental design was set up with 47 primary school children (ages = 9-10). The participants, divided into two groups participated in a verbal-based (after listening, describe what you heard in the music) vs. movement-based intervention (while listening, show what you hear in the music, with your body movement). Both the group of children used invented notation and verbal explanations to describe their musical interpretation.

The analysis consisted of a mixed, exploratory method: first, a qualitative analysis of the data was performed to explore the nuances of the phenomenon (e.g., children's notations and video interviews); subsequently, the qualitative data were quantified based on a set of classifications (e.g., categories, sub-categories, verbal themes) to explain whether their occurrence in pre and post-test among groups was significant through the statistical test (e.g. *Wilcoxon Sign Rank* and *Kruskal-Wallis rank* test).

Results

Results of visual and verbal data from pre to post-test revealed a significant increase of notations and verbal explanations focused on the description of the salient musical features perceived among children involved in a bodily music interaction, with a focus on the structural and temporal organization of the piece (e.g., repetition, variation, identification of musical phrases, and melodic profiles). Differently, the participants of the verbal group, showed a tendency, from pre to post-test, to a metaphorical description of the musical features piece through the narrativization of the salient cues detected in the music (Nattiez, 2011; Fortuna & Nijs, 2020).

Conclusions

Results seem to highlight the impact of body movement on being present with the music and the role of kinaesthetic memory in clarifying and reinforcing the temporal dimension of the listening experience.

This study, exploring the role of the physical versus verbal interaction in music analysis, may give insight into music analysis education.

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Keywords: Embodied music cognition, notations, analysis, structure, narrativization

The Training of the Musical Rhythm; from Perception to Skill

(Jenni) Riikka Ahokas
University of Jyväskylä, Jyväskylä, Finland

Background

This presentation focuses mainly on two sub-studies of the first author's PhD thesis. Sub-study one was conducted in a practical school setting (Ahokas et al., 2023) and sub study three was a large systematic review (Ahokas et al., 202x). The overall focus of the first author's dissertation is on rhythm-induced movement and its effects on cognitive function, particularly executive function. Here, the main focus of this presentation will be on rhythm interventions.

Aims

This presentation aims to improve the dialogue between specific areas of practice and science, e.g. music education and cognitive music science (Ahokas, 2022). How could the scientific and practical knowledge of these two disciplines be shared and accessed more efficiently?

Method

This presentation will first discuss the practical reality of rhythm perception and the training and learning of rhythmic skills (i.e., as in Ahokas et al., 2023), and then move on to the benefits of this knowledge for research. The benefits are discussed, for example, by looking at the results of our systematic review (Ahokas et al., 202x), which focused on previous studies of the effects of rhythm training on executive function.

Results

The review contributes to cognitive music science and cognition research, but also supports more practical and replicable science on the topic. From the initial outcome of a total of 15,677 identified records, 10 research reports met the eligibility criteria and were included in the final synthesis of the systematic review. Of the ten eligible articles in our review, seven were pure dance intervention papers. This may indicate several things, but one intriguing idea is that dance training may be one of the most effective ways to teach musical rhythm.

Conclusions

This presentation discusses the benefits of training rhythmic skills for human cognition. It also aims to discuss the overall importance of rhythm for all actions and considers rhythm as a fundamental part of all human physical activity (Kotz et al., 2018).

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Kotz, S. A., Ravignani, A., & Fitch, W. T. (2018). The evolution of rhythm processing. *Trends in cognitive sciences*, *22*(10), 896-910.

Keywords: rhythm, intervention, cognition

Exploring the Intersection of Affect and Musical Engagement to Define Affective Computing in Musical Collaboration

Justin Kerobo, Ico Bukvic

Virginia Tech, Blacksburg, USA

Background

This paper explores the interplay between affect and musical engagement, drawing on psychological theories and empirical studies. We propose extending this exploration into telematic music, investigating the potential for creating an emotional AI collaborator.

Aims

The study aims to compile a dataset for machine learning by converting physiological responses, self-reported emotions, and musical passages. That data will allow AI to generate symbolic music. The aim is to explore the integration of an AI with human feedback from physiological factors and emotional context into a novice computer music ensemble. This work also defines ACMC as a combination of physiological factors in the context of music, further expanding to telematic music, resulting in an interdisciplinary field that focuses on developing advanced technological tools and systems to facilitate emotional expression, engagement, and collaboration in telematic music performances. This research represents a step in human-computer interaction, flow research, and machine learning with regards to human factors variables, covering theoretical foundations regarding the psychology, neuroscience, and musicology perspectives from a human factors perspective and theoretical foundations regarding the machine learning, natural language processing (NLP), and symbolic music generation perspectives. Finally, the goal of investigating telematic music as a new context for emotional AI in musical collaboration has never been achieved.

Main Contribution

The paper introduces Affective Computing in Musical Collaboration (ACMC), exploring the intersection of physiological factors and music, particularly in telematic settings, to foster emotional expression and collaboration. It employs flow theory to understand musical engagement, examining cognitive, affective, and psychophysiological indicators to characterize flow states. Integrating AI, machine learning, and human feedback is proposed to deepen understanding and enable continuous measurement of physiological patterns, thereby advancing music information retrieval knowledge and enhancing emotional expression, collaboration, and engagement in musical performance.

Implications

Hence, to study the relationship between affect and musical engagement, we need an overall engagement metric of flow that aligns with the current flow research results (Peifer et al., 2022). The insights gained from recent research show a gap in clear physiological flow patterns, which is the next major step in research. Moving toward that end, this argument proposes ACMC, a novel interdisciplinary field that pioneers the development of advanced technological tools and systems. These tools and systems are designed to facilitate emotional expression, engagement, and collaboration in the unique context of telematic music performances. The proposed tool, a real-time human-classified emotional MIDI dataset or an LLM taught the expressiveness of a unique system, would enable symbolic music generation within the context of a computer music ensemble and through the telematic music platform, L2Ork Tweeter (Bukvic, 2009, 2020). A Russell Circumplex of Affect (Dewey, 1894) module would connect with L2Ork Tweeter to classify the emotion.

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Keywords: Affect, Musical engagement, Telematic music, Emotional AI collaborator, Human-computer interaction.

Emotional Responses to Music: The Essential Inclusion of Emotion Adaptability and Situational Context

Marco Susino[1], William Forde Thompson[2], Emery Schubert[3], Mary Broughton[4]

[1]San Diego State University, USA. [2]Bond University, Australia. [3]UNSW Sydney, Australia. [4]The University of Queensland, Australia

Background

How humans emotionally respond to music has become considerably better understood through investigations in which potential influences are experimentally manipulated (Juslin & Sloboda, 2010). Cognitive theories of music and emotion guide the predictions of felt and perceived emotional responses to music and the framing of results (e.g., Juslin, 2013; Susino & Schubert, 2017). Frequently, these results are interpreted as agreement or disagreement within and between groups and, at times, either universal or culture-specific. Despite such advances, a significant proportion of group variance in emotional responses to music remains unexplained, with few satisfactory explanations as to why, including in replication studies (Ma et al., 2023).

Aims

We contend that an explanation for such variance is that emotional responses to music adapt, arising from a conscious and subconscious continuous analysis of the overarching situational context interacting with psychophysical, cultural, and personal variables. We provide critical assumptions and predictions that may help to guide the design of effective studies and music interventions for a range of psychosocial goals.

Main Contribution

By integrating theory and data from multiple domains, we present the Framework for Adaptable Musical Emotions – FAME (Susino et al., 2024). FAME explains the concept of emotion adaptability by illustrating how emotional responses continuously shift to align with fluid situational contexts across time. Emotion adaptability helps to explain and predict the convergence and divergence of emotional responses to music across individuals and cultures over evolutionary time frames to fleeting moments, and enriches the traditional dichotomy between universal and cultural influences on emotional understanding, taking into consideration fluid interactions over time that are dependent on knowledge, experience, and available cues within a situational context. This is a shift from music-focused explanations of emotional responses or categorical interpretations.

Implications

FAME provides the first predictions of emotional adaptability and situational context, guiding future research and novel understandings. Considering the novelty of this framework, it will have crucial implications for research in music, emotion cognition, and in the context of multidisciplinary research and applied contexts. As research continues, traditional approaches to investigating music and emotion will be complemented with additional techniques such as adaptation paradigms and complex systems modeling. As research begins to uncover the impact of various situational contexts on emotional responses to music and their adaptability, it will refine our understanding of the psychological basis for the link between music and emotion.

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Keywords: emotion, affect, arousal, adaptive processes, situational context

Saturday, 26 October 2024

Faculty of Humanities and Social Sciences

PROGRAMME

9:30 – 10:30: **Keynote 4**

D7, ground floor

Chair: Suvi Saarikallio

The personality of musicians and its relationship to musical accomplishments

Blanka Bogunović

University of Arts in Belgrade, Faculty of Music, Belgrade, Serbia

Background

The presentation raises questions about the contribution of personality to musical excellence. It has a developmental perspective, aiming to represent the findings stemming from the specific three-staged specialist music education in the Western Balkans, specifically in Serbia, and compare the results within the broader socio-cultural context.

Aims

The main aims are to present 1) the relationship between personality dimensions and musical achievements through a developmental perspective, 2) the joint contribution of personality and motivation to musical development in music education for the gifted, and 3) professional problems related to high achievements.

Main Contribution

The presentation is structured as a review of the research studies conveyed through three decades of empirical research in the interdisciplinary fields of music psychology and music education. The review points out the core role of personality attributes through the four developmental stages (aged 6-56), focusing on performance and professional musical achievements (Bogunović et al., 2024), as well as on the impact the striving for the highest accomplishments had on musicians' health and well-being (e.g., Mirović et al., 2013). The developmental line starts with the early years of specialist music education, to adolescence, and continues with young adult age at music higher education, ending with music professionals, teachers, and highly successful performers. The research review indicates the relevance and differential, but also intertwined contribution of personality traits and motivational features to various accomplishments, suggesting changes with developmental stages (e.g., Bogunović, 2010, 2018). Several studies pointed out the impairing impact of the high demands, frustration, stress, and critical evaluation that the profession brings to musicians starting from adolescence and beyond. The position of the relatively marginalized groups of musicians, with fewer chances for high achievements, will be pinpointed (e.g., Protulipac et al., 2023).

Implications

After summarizing the findings, it will be suggested what music education and psychologists could do for the well-being of musicians, both highly achieving and those not finding their best way in the music profession.

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Keywords: personality, music education, achievements, motivation, professional problems.

10:45 – 12:00: **Poster presentations**

D2; Entrance Hall

Chair: Ana Butković

1. Aíssa Baldé, César F. Lima & E. Glenn Schellenberg: Contributions of low-level auditory processing to musical abilities
2. Philippa Booth, Rosie Perkins & Neta Spiro: Disordered Eating in Musicians:

a Mixed-Methods Exploration

3. Abbigail Fleckenstein, Jonna Vuoskoski, Suvi Saarikallio: Being Musically Moved
4. Ruby Crocker & George Fazekas: Music, Mood, and Motion: Emotion in Film Music Dataset
5. Aleksandra Fedorova & Tatiana Lvova: Professional Retraining Program "Psychological Counselling and Music Therapy in the Field of Music Education"
6. Jovana Blagojević & Katarina Habe: Choral Singings' Effects on Wellbeing in Slovenian and Serbian Youth Choirs – Quantitative Results
7. Tadej Sadar: The Impact of the Non-Harmonicity of Tempered Tuning on Individuals and Whether Natural Tuning Positively Affects Them
8. Ana Topić, Kristina Hrenek, Kristina Matković, Jure Černeha & Sanja Kiš Žuvela: The difference in the assessment of subjective well-being between music students and students of other study programmes
9. Ana Vukelić, Tesa Komlinović & Ana Butković: Translation to Croatian of the Kenny Music Performance Anxiety Inventory for Adolescents (K-MPAI-A)
10. Jelena Vuković: Through the Organization of Movement to the Art of Piano Playing (achieving the Art of Piano Playing Through the Organization of Movement)

Contributions of low-level auditory processing to musical abilities

Aíssa Baldé[1], César F. Lima[1,2], E. Glenn Schellenberg[1,3]

[1]Iscte - Institute University of Lisbon, Lisbon, Portugal. [2]University College London, London, Portugal. [3]University of Toronto Mississauga, Toronto, Canada

Background

Many studies show associations between music training and enhanced performance on nonmusical tasks, such as speech perception (e.g., Coffey et al., 2017). Nevertheless, recent evidence suggests that variation in *natural* musical ability, rather than music training, could explain these associations. Indeed, some nonmusicians have good musical skills and can perform as well as musicians on speech perception tasks (Correia et al., 2022). An important topic that remains poorly understood concerns the perceptual and cognitive factors contributing to musical ability differences.

Aims

We asked whether individual differences in low-level auditory skills predicted musical expertise (musical ability, music training, abilities and behaviors). Because low-level attributes of sound (e.g., pitch, intensity, duration) form the basis of our capacity to perceive complex sounds, such as speech and music, auditory skills could explain some of the variance observed in the development of musical abilities. Musicians show lower auditory thresholds than non-musicians, suggesting a link between general listening skills and musical expertise (e.g., Micheyl et al., 2006). At the other end of the spectrum, music disorders, such as amusia, have been hypothesized to arise from impairments in perceiving low-level acoustic cues (pitch; Hyde & Peretz, 2004).

Method

We collected data from 140 adults with varying levels of musical ability. Listeners completed nine psychoacoustic tests, each tapping into attributes of sound including pitch, duration, and intensity. Musical abilities were assessed with an objective melody and rhythm discrimination test, the Musical Ear Test, two self-report questionnaires, the Goldsmiths Musical Sophistication Index (Gold-MSI), and the Big Five Inventory (BFI). We used non-verbal reasoning ability and short-term memory capacity as measures of general cognitive abilities.

Results

Music training and melody perception were predicted by performance on the pitch tasks, even after accounting for demographics, cognition, and personality. Rhythm perception correlated with seven of nine psychoacoustic thresholds, although none stood out as being particularly relevant. Psychoacoustic thresholds considered jointly had no association with self-reported musical abilities and behaviors, which were mainly predicted by music training and the personality trait openness-to-experience.

Conclusions

This study contributes to understanding the perceptual skills that shape musical expertise.

References

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Keywords: music perception, musical ability, auditory processing, psychoacoustics

Disordered Eating in Musicians: A Mixed-Methods Exploration

Philippa Booth, Rosie Perkins, Neta Spiro

Royal College of Music, London, United Kingdom

Background

The current body of research concerning disordered eating (DE) in musicians is limited and contradictory (Kapsetaki & Easmon, 2017b). Research suggests that eating disorders (EDs) may be a common problem in musicians, with 32% of the 301 adult musicians in Kapsetaki and Easmon's (2017a) study reporting some form of ED over their lifetime. Given that EDs have the highest mortality rate of any psychiatric disorder, there is a strong imperative for further research. EDs in other performance disciplines such as dance have been subject to considerable research over the years (Arcelus et al., 2014), but it is unclear as to whether the findings regarding risk factors and experiences generalize to the musical domain.

Aims

This doctoral project aims to investigate DE in musicians, and in particular addresses a clear absence of qualitative data in the literature, examining 1) the risk factors/determinants that may lead to the development of DE in musicians, 2) the individual experiences of musicians who have experienced DE, and 3) what treatment/prevention/support for DE would be beneficial for musicians.

Main Contribution

This presentation will report on a literature review currently being conducted regarding DE in musicians. It will outline the psychological and sociocultural risk factors that contribute to the development of DE in the general population and consider how these relate to/overlap with the many challenges that musicians face in their careers. It will then cover personality traits that research suggests are common amongst both musicians and those struggling with DE, alongside factors such as attractiveness bias in the music industry and the impact of social media and exposure to the 'thin ideal'. Building from the findings of the literature review, the presentation will outline three studies that will be conducted over the course of the doctoral project: 1) a quantitative survey-based study aiming to identify relationships between DE and other risk factors (e.g. perfectionism, obsessive passion for music, neuroticism, professional characteristics) in musicians, 2) a qualitative interview study with musicians who have experienced DE, and 3) a qualitative focus-group study which will take a co-creation approach to consider what potential resources/adjustments would have a positive or preventative impact on musicians who have struggled/are struggling with DE.

Implications

The impact of this work has the potential to reach 1) musicians, 2) other performance disciplines, and 3) extend beyond the music industry and contribute towards our wider understanding of DE in the general population through an increased understanding of the factors that lead to their development.

References

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Kapsetaki, M. E., & Easmon, C. (2017b). Eating disorders in non-dance performing artists: A systematic literature review. *Medical problems of performing artists, 32*(4), 227-234.

Keywords: musicians, performing artists, eating disorders, well-being, mental health.

Music, Mood, and Motion: Emotion in Film Music Dataset

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Background

Composers and filmmakers use music to manipulate emotion to aid storytelling (Herget, 2021). There is still a limited understanding of how composers use musical techniques and styles to evoke emotion. Existing datasets for computational analysis of film music often lack diversity and fail to incorporate modern compositional techniques and representations of emotion perception. Film music studies appear to neglect the inclusion of time-based annotations to establish mood within film music. To address this, the Film Music Emotion Dataset (FME-24) has been curated specifically to study emotion perception in modern film music, incorporating diverse genres and compositional techniques. FME-24 introduces a degree of temporal control by providing time stamps, allowing for dynamic granularity in analysis—a feature often absent in other film music studies.

Aims

The primary objective of this study was to compile a comprehensive dataset, FME-24, designed specifically to investigate the perception of emotion in modern film music. By collecting diverse annotations from participants, we aimed to address the existing limitations in understanding how composers employ various musical techniques and styles to evoke emotions in audiences.

Method

Participants completed an online survey assessing their music background, listening habits, and ability to interpret emotion in music. They then engaged in a listening and annotation task, marking changes in emotion over-time on a visual waveform and plotting arousal and valence coordinates on a graph. Participants also provided sentences describing their emotional responses, ensuring consistency and validation of the annotations. The dataset comprises of film compositions from the past twenty years, selected based on award-winning original scores and diverse film and music genres. The selection process for film music prioritized compositions displaying a degree of originality ensuring that future analyses of the data remain unbiased toward compositions with similar styles.

Results

Over 150 participants have contributed annotations so far for 300 compositions. Participants come from a range of different backgrounds in terms of music experience, ethnicity, age and gender enhancing the representation

of societal emotion perception. The FME-24 dataset consists of annotations with time stamps, arousal valence annotations, emotion sentences and familiarity ratings.

Conclusions

The FME-24 dataset, along with ongoing survey data collection, offers a rich resource for studying emotion perception in film music. Analysis of the dataset will shed light on how composers employ music techniques to manipulate emotions. These annotations will facilitate the discovery of parallels between emotion and music changes, enhancing our understanding of the impact of music on audience perception and film experience. The dataset was created with the purpose of employing machine learning techniques to derive insights from film music.

References

Herget, A. K. (2021). On music's potential to convey meaning in film: A systematic review of empirical evidence. *Psychology of Music, 49*(1), 21-49.

Keywords: music emotion recognition, arousal, valence, film music, participatory analysis

The Retraining Course Program "Consultative Psychology and Music Therapy" in Music Education

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Background

In recent years, there has been a significant increase in the demand for psychological support for musicians at all stages of professional training. Health-saving and music therapy approaches are being introduced into the context of music education.The introduction of psychological practices in music classes and music therapy in psychological counseling can mutually enrich professional activities.

Aims

We have developed a program designed for individuals with special and higher levels of training education in the field of music pedagogy, performance and psychology to meet this increased demand.

Main Contribution

The retraining course program is called: "Consultative Psychology and Music Therapy in Music Education".

The program is intended for persons with secondary specialized and higher education in the field of music pedagogy, performance, psychology. The course is divided into 4 blocks:

1. Basic theories and practices of psychological counseling for musicians.

2. Techniques of psychological self-regulation and recovery. Stage psychology (Luchinina, 2017).

3. Communication and conflict management in music education.

4. The therapeutic potential of music and music therapy.

Implications

The retraning course started in 2022, and now we can present the first results of this work. We hope that this program will be effective in training unique specialists who combine the best practices of music education, psychology, and music therapy.

References

Luchinina, O. (2017). *Psychology of stage activity of a musician*. Astrakhan.

Keywords: retraning, music education, consulting, music therapy, psychology.

Being Musically Moved

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Background

Ongoing empirical evaluation of 'being moved' has laid the foundation for understanding the elicitors of the feeling, its emotional and physiological correlates, and potential action tendencies associated with the experience (Menninghaus et al., 2015). Among the various elicitors, music and artistic beauty have been identified as triggering the emotion (Hänninen & Koski-Jännes, 2023; Menninghaus et al., 2015).

'Being moved' may be conceptualized according to moral, communal, and/or value related standards and may differ in their subsequent action tendencies according to these standards (Landmann, et al., 2019). Conceptualizing being moved in these ways is of interest concerning when artistic beauty is an elicitor of the emotion. Understood as a value, beauty ratings of musical excerpts have been shown to positively correlate with ratings of being moved (Vuoskoski et al., 2022). Still, a qualitative evaluation of the experiences eliciting this emotion has yet to be conducted. As a result, it is unknown how listeners subjectively conceive of moving experiences evoked by music, how this experience relates to aesthetic values such as beauty, or whether these experiences could be better conceptualized as moral, communal or value emotions.

Aims

This project aims to qualify musical experiences considered to be moving or beautiful by identifying the music/musical events eliciting the experience, emotional correlates experienced, and potential action tendencies resulting from these experiences.

Method

The project implements a mixed methods approach. Data collection is ongoing consisting of an online questionnaire (target *n*= 220) collecting open-ended responses of music listening experiences considered to be moving or beautiful, and scale-rating responses adapted from AESTHEMOS and KAMMUS. Two questionnaires to gain additional information about the emotional correlates and the action tendencies associated with these experiences.

Results

Open-ended responses will be analyzed using template analysis, a type of thematic analysis. It is anticipated that affective ratings of music considered to be moving will positively correlate with both positive and negative valenced emotions (Schindler et al., 2022).

Conclusions

Findings from this project seek to contribute to ongoing empirical evaluation of the experience of being moved by deepening understanding of its emotional correlates and action tendencies in musical contexts. Future directions for similar research on the topic will also be discussed.

References

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Keywords: online questionnaire, mixed methods, music listening, being moved, beauty

Choral Singings' Effects on Wellbeing in Slovenian and Serbian Youth Choirs – Quantitative Results

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Background

In previous studies, choral singing has shown its unique advantages in comparison to others for wellbeing in youth (Livsey, et al., 2012). The multifaceted benefits of choral singing on wellbeing have been explored, encompassing psychological, social, physical, cognitive, emotional, and spiritual dimensions (Clift, et al., 2010; Fernández-Herranz, et al., 2022; Londsday & Day, 2020; Stewart & Londsdale, 2016). In spite of the research findings of the existing studies, there is still insufficient amount of research regarding youth choirs. This research serves as a quantitative study within a larger research framework.

Aims

The goal of this study is to examine the effects from choral singing on various aspects of wellbeing in Slovenian and Serbian youth choir members. The objectives include aspects: satisfaction with life, the effects of choral singing on psychological well-being, and the various functions of music within choral singing.

Method

This study employs a quantitative research approach as part of a broader investigation. The participants (N=300) will be members of youth choirs, who are high school students and students in college (between 15 and 24 years). Data collection will involve online questionnaires designed to gather demographic information, various well-being dimensions, positive mental health, social support and benefits of choral activity in choir singers.

Results

Findings are expected to provide insights into choral singing's connection with wellbeing in Slovenia and Serbia youth choir participants, encouraging the educational and community practices, by highlighting the effects of engaging in choral singing on adolescents' wellbeing. Positive effects of choral singing are expected in various well-being dimensions, positive mental health, social support and several benefits of choral activity. In addition, we expect greater wellbeing among participants in choirs as an extracurricular activity, considering the voluntary nature of their engagement, and in female singers.

Conclusions

These insights potentially hold valuable implications for educational and community practices, indicating that the integration of singing group programs within schools and other institutions may serve as a strategy for increasing holistic wellbeing among generally healthy young individuals.

References

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Keywords: youth choirs, wellbeing, mental health, social support, benefits of choral singing

The Impact of the Non-Harmonicity of Tempered Tuning on Individuals and Whether Natural Tuning Positively Affects Them

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Background

Music theorists - from Pythagoras onwards - have debated the harmoniousness of music and compared it to beauty and mathematical proportions (Trulla et al., 2018). Natural tuning is represented by aliquot tones, the regularity of which is governed by the natural scale, which, however, has been adapted to various solutions primarily due to keyboard and some string instruments, leading to a universal solution - tempered tuning, which, due to its adjustment, introduces significant irregularities compared to natural tuning (Leimu, 2017).

Aims

The content aims to propose the introduction of a novel terminological distinction to delineate natural tuning from others. Questions arise regarding whether natural tuning constitutes music in the conventional sense, suggesting it might be more accurate to conceptualize it as a physical phenomenon or manifestation of harmony in nature.

Main contribution

Natural tuning, originating from physical phenomena, lacks practical use in conventional music (Leimu, 2017). Introducing a new term would liberate researchers from constant comparisons to conventional music, allowing exploration of the richness of harmonics. Upon consolidating current literature, we observe an increasing number of recent studies investigating human perception of natural pleasant/unpleasant intervals (Leimu, 2017). The majority of these studies highlight the expected phenomenon that individuals become so accustomed to a specific tuning that the one characteristic of our cultural environment (Leimu, 2017) is also perceived as pleasant/unpleasant, despite bringing significant irregularities compared to natural tuning (Leimu, 2017). However, there is a lack of research confirming the therapeutic effects of perfect harmony (cf. Dewhurst-Maddock, 1999).

Implications

This theoretical review elucidates the significance of overtones, which are a physical reality and historically attributed with healing properties (cf. Tibetan singing bowls, gongs, shamanic drums). Due to the substantial disruption of harmony in intervals and chords caused by tempered tuning (Bernini & Talamucci, 2014), the question arises whether this disruption of harmony also affects human well-being.

In preparation for a study comparing the influence of natural versus tempered tuning and monitoring infant responses, amid a qualitative, preliminary investigation into the impact of natural tuning on the sleep of older adults, we are observing promising results exploring the therapeutic effects of natural tuning (Goldsby et al., 2022).

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Keywords: harmony, just intonation, consonance, well-being

The difference in the assessment of subjective well-being between music students and students of other study programmes

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[1]University of Zagreb Academy of Music, Zagreb, Croatia. [2]University of Zagreb Faculty of Croatian Studies, Zagreb, Croatia

Background

Recent research favours greater life satisfaction of musicians compared to the general population. Aryanto and Hartono (2015) showed that musicians feel more positive emotions and higher life satisfaction. Weinberg and Joseph (2016) proved greater subjective well-being in participants interacting with music and those consuming music through social activities (e.g. dancing or attending concerts). Croom's (2014) literature review using Seligman's PERMA model examined the contribution of music to positive emotions, engagement, relationships, meaning, and accomplishment in non-musicians. Discussing the problems caused by excessive music involvement, he argued that optimal subjective well-being must meet optimal conditions.

Aims

This research examines the difference in subjective well-being between music students and other students, the life satisfaction of music students, and whether music contributes to the assessment of subjective well-being for them. In line with MacDonald (2013), who describes five models of using music for subjective well-being (music education, music therapy, music medicine, community music and everyday uses), we anticipate that music students achieve higher results on Diener's subjective well-being scales.

Method

The participants were students of the University of Zagreb (n = 108; 53 of the Academy of Music; 65.7 % female). The questionnaire comprised the adapted Croatian version of Diener's subjective well-being scales (SWBS, Komšo & Burić, 2016) and five questions examining daily listening to music. After calculating the arithmetic means, we conducted a *t*-test.

Results

Music students showed medium results in SWBS (M = 3.59). The t-test indicated no statistically significant difference in the arithmetic means of Satisfaction with Life Scale, Scale of Positive and Negative Experiences, Flourishing Scale and the scale representing listening to music between music students and other students. There was no statistically significant difference in the results between students of other study programmes who were involved in musical activities and those who were not, and the sex-related difference was negligible.

Conclusions

This study did not confirm our expectations. Contrary to the mentioned studies, the results indicate no substantial difference between students involved in musical activities and other students. The relationship between musical activity and the assessment of subjective well-being should be explored further, on a larger sample.

References

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Keywords: well-being, students, music students, music listening, emotions

Translation to Croatian of the Kenny Music Performance Anxiety Inventory for Adolescents (K-MPAI-A)

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Background

Music performance anxiety (MPA) is a condition characterized by intense and persistent apprehension related to musical performances. It can be triggered by biological or psychological vulnerabilities, as well as specific anxiety-inducing experiences. MPA can manifest itself through a combination of emotional, physical, and behavioral symptoms. It can occur in various performance settings but usually, it is severe in situations involving high stakes, audience, and fear of failure. It can be solely focused on musical performance or it can occur alongside other anxiety disorders such as a social phobia. Importantly, MPA can affect musicians of all ages, levels of experience, and training or accomplishments, and it may or may not impact the quality of their performance (Kenny, 2010). Less research attention aimed to examine musical performance anxiety in children and adolescents (Papageorgi, 2022) although automatic anxiety responses to performance situations are present from an early age and may set the stage for subsequent reactions to music performance experiences throughout life (Kenny, 2011). However, to the best of our knowledge, there is no measure of MPA in adolescents in Croatia.

Aims

Aim of this study was to translate to Croatian the 15-item Kenny Music Performance Anxiety Inventory for Adolescents (K-MPAI-A) and examine its psychometric properties.

Method

K-MPAI-A was translated with a double-blind translation procedure, including the following steps: translation into Croatian by 3 experts in psychology and music, translation back to English by 2 independent experts in English, and cross-cultural adaptation of the translation. Following that, the translated K-MPAI-A was completed by 21 music school students (aged 9-16, *M* = 11.5, *SD* = 1.66; 61.9% female), and the data was used to test the validity and reliability of K-MPAI-A.

Results

Both content analysis and intercorrelations between the items suggested that one item should be reverse coded. After that, both Cronbach's alpha and McDonald's omega showed satisfactory reliability of the instrument (α = .88, ω = .89). Principal component analysis was performed, and based on parallel analysis one component was found to account for 40.7% of the variance with 13 of the 15 items having factor loadings higher than .50 on this component.

Conclusions

These results in general demonstrate evidence of construct validity and reliability of the Croatian version of K-MPAI-A. However, further research is needed to examine how the items that were not functioning can be adapted.

References

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Keywords: music performance anxiety, adolescents, reliability, factor structure

12:30 – 13:50: **Parallel oral sessions 19 – 21**

Oral session 19 **Music and individual differences**

A229, 2nd floor

Chair: Martina Lozić

1. Abigail Jareño: Ludwig van Beethoven's Psyche. Uncovering a Role Model for Current Musicians

2. Gerard Breaden Madden, Steffen A. Herff, Scott Beveridge & Hans Christian Jabusch: The Good, the Bad and the Angry: Selective desire to suppress and intensify unpleasant emotions characterises the practice of musicians with higher expertise-related goals

3. Dejana Mutavdžin, Olja Jovanović, Ana Altaras Dimitrijević & Blanka Bogunović: "If Not a Musician... Then What?": Identity Development in Musically Gifted Radical Accelerands

Oral session 20 **Music and emotion**

D2, ground floor

Chair: Tena Vukasović Hlupić

1. Anđela Milošević: Music Makes My Soul Happy: Relationship Between Music-Related Mood Regulation Strategies and Subjective Happiness

2. Thomas Lennie: Exploring Appraisal Dimensions in Music: Toward the Development of a Standardized Appraisal Tool for Musical Emotions

3. James Cannon, Alinka Greasley, Alice O'Grady & Scott Bannister: Embodiment, Emotion and Social Bonding on The Dancefloor: Initial Findings from a Replica Club Study

4. Ljiljana Plazinić: How does this music make you feel? Exploring the Structural Dimensions of Affective Musical Experience

Oral session 21 **Interdisciplinary encounters**

Library Conference Hall, 2nd floor

Chair: Sanja Kiš Žuvela

1. Laurent Cugny: Musicology: A new space for psychology?

2. Charlotte Massemin: Exploring Musical Addiction: An Interdisciplinary Review from Neurobiology, Psychology, Sociology, and Musicology

3. Sascia Pellegrini: Soundography: A Spacetime Mapping Experiment

4. Marijan Tucaković: With a Pinch of "sats". The Psychological Significance of Performative Impulse in Performance of Classical Music

Oral session 19 **Music and individual differences**

A229, 2nd floor

Chair: Martina Lozić

Ludwig van Beethoven's Psyche. Uncovering a Role Model for Current Musicians

Abigail Jareño

University CEU San Pablo, Madrid, Spain

Background

Musicians and artists face multiple challenges and situations. Dealing with them and pushing forward with their work is a fundamental part of their lives. One way to learn how to be an artist in its many psychological dimensions is through great figures who achieved their goals in life and continue to be references and examples we look up to. Composer Beethoven, whose ninth symphony celebrates its 200th anniversary in 2024, is a legend in the musical world.

Aims

The main goal of this research was to understand and interpret the phenomenon of the personality of Ludwig van Beethoven by carrying out a psychobiography. To achieve a holistic and integrative understanding of the composer's personality, the three-level model of personality by McAdams (1995) was applied.

Method

Psychobiography was conducted with the twelve steps recommended by Du Plessis (2017).

Results

Results from level 1 indicated very interesting aspects such as high levels of fantasy and aesthetics, moral values, and emotional awareness. High sense of duty and self-discipline, and a high desire for company as well as for helping others in need.

At level 2, lack of stability at home when he was a child, in terms of attachment figure availability, was compensated by teachers and friends during his adolescence and adulthood. That explains his attitude and behavior with others and himself. He assumed responsibilities and showed a desire for personal development throughout his life that helped his career too.

Regarding his narrative identity, Beethoven's life story is a tragic-romantic one with three main psychological motivations (protecting his family, becoming a great man, and becoming an artist). His narrative was also centered around three characters: the maker, the *hosenknopf* and the warrior.

Conclusions

A psychobiography allows the researcher to go deeper into one subject's mind using the existing psychological theories of personality and development that are scientifically supported. Du Plessis (2017) offers an updated guide from the selection of the subject to the evaluation and revision of the process, that will give structure and rigor to future psychobiographies. In this study, the three levels of personality helped to better understand Beethoven's behavioral tendencies, as well as his attachment style and his own narrative of himself. The careful study of the personality of highly relevant figures offers a more complete vision of them incorporating personal areas which, on occasion, are overshadowed by their artistic, social, or political works. This methodology brings

these outstanding figures closer to all, to current musicians, revealing the inherent imperfection and vulnerability that every human being possesses.

References

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Keywords: Beethoven, psychobiography, personality of musicians

The Good, The Bad and The Angry: Selective desire to suppress and intensify unpleasant emotions characterises the practice of musicians with higher expertise-related goals

Gerard Breaden Madden[1], Steffen A. Herff[2,3], Scott Beveridge[1], Hans-Christian Jabusch[1]

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Background

In music, valuable outcomes such as success and advancement usually depend on demonstrations of expert skills (e.g., competitions, performances). Acquiring expertise in music is therefore an important goal for many musicians, requiring years of deliberate practice (Ericsson et al., 1993). Musicians may wish to regulate their emotions to optimize performance and attain their goals. The attainment of long-term challenging goals may be supported by regulating emotions which promote utilitarian rather than hedonic outcomes (Breaden Madden & Jabusch, 2021). Regulating emotions which promote utilitarian outcomes can be seen as an important component of any long-term plan to develop musical expertise. When practicing, musicians may therefore prioritize whichever emotions are most conducive to attaining expertise, even if those emotions are not necessarily pleasant (Breaden Madden et al., 2023).

Aims

We investigated how strongly musicians experienced and desired different emotions in their practice, as well as the relationship between their desired emotions and expertise goal orientation.

Method

421 musicians completed an online questionnaire providing information about their musical biography and their expertise-related goals. They also completed several emotion scales, indicating how strongly they actually experienced different emotions during their practice, and how strongly they desired to either intensify or reduce these same emotions, respectively. We investigated the relationship between desired emotions and expertise goal orientation using a Bayesian mixed effects model, controlling for musical biography and demographic factors. Evidence ratios (ER) > 19 indicate strong evidence for an effect.

Results

Musicians experienced moderate/high levels of positive emotions and moderate/low levels of negative emotions in their practice. They indicated a stronger desire to intensify positive over negative emotions. Our Bayesian model

indicated that higher expertise goal orientation was predicted by greater desire to intensify anger, less strong desire to intensify guilt and gloom, and greater desire to reduce downheartedness (all ER > 19).

Conclusions

Our findings suggest that musical practice is generally a pleasant experience and that musicians want it to be. Although musical practice was characterized mainly by positive emotions, musicians with higher expertise related goals indicated nuance with respect to how they experience unpleasant emotions. They desired to suppress several unpleasant emotions alongside greater desire to intensify anger. Despite its low hedonic value, anger possesses utilitarian properties which may motivate persistence in goal pursuit. In contrast, unpleasant emotions such as downheartedness contribute to disengagement. The connections identified between expertise goal orientation and the selective desire for unpleasant emotions suggest that pursuing musical expertise promotes sophisticated emotion regulation knowledge. These findings contribute to our understanding of expertise-related mindsets and may have implications for personalized musical practice strategies.

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Keywords: Emotion Regulation, Musical Practice, Expertise, Anger, Unpleasant Emotions

”If not a Musician–Then What?”: Identity Development in Musically Gifted Radical Accelerands

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Background

Our narrative identities are complex cognitive constructs consisting of internalized, integrative accounts of past, present, and future critical life events (McAdams, 1996). By narrating these critical events and the transitions between them, individuals establish a sense of continuity between past and future selves (Ibarra & Barluescu, 2010). Previous research (Jovanović et al., 2024) suggests that, in the lives of gifted musicians, radical acceleration is one of these critical events.

Aims

We aimed at understanding the identity construction in exceptionally musically gifted individuals and the role of radical acceleration in that process.

Method

In online narrative interviews (Spector-Mersel, 2011), four accomplished classical musicians who experienced radical acceleration in their music education shared their life stories.

Applying Interpretive Phenomenological Analysis (Smith & Osborn, 2003) we identified six life chapters (LC) and appurtenant themes.

Results

Participants' life stories begin in musically rich family environments (LC1), and with early recognition of their musical gift. Guided by family and/or competent music teachers, and their own passion for playing (LC2), they have subordinated all other activities to practicing music, and practice has led to immense progress in musical skill; high accomplishments followed and gave rise to a positive musical self-concept. Entering university at the age of 14-15 (LC3), starting a professional music life and having great musical achievements, their musical identity grew stable, but wasn't questioned. After graduating (LC4), the rise of new professional and private roles changed the way they perceive themselves. At the onset of early adulthood (LC5), the highly developed solo-performer identity sparked anxiety and uncertainty when thinking about professional risks coupled with limited career options. Looking back (LC6), they embrace the positive consequences of acceleration, while realizing its negative sides, too, like having no time to ask oneself: If not a musician, what would/could I be?

Conclusions

The life stories of exceptionally gifted musicians indicate that acceleration has substantially shaped who they are, not only as musicians, but that it has had a pervasive impact on their identities in other areas of life as well.

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Keywords: musical identity, life story, radical acceleration, exceptionally musically gifted, accomplished musicians.

Oral session 20 **Music and emotion**

D2, ground floor

Chair: Tena Vukasović Hlupić

Music Makes My Soul Happy: Relationship Between Music-Related Mood Regulation Strategies and Subjective Happiness

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Background

The period of emerging adulthood is filled with many demands and challenges (Arnett, 2007) which affect both emotions and the subjective feeling of happiness. In this context, listening to music can be of great importance, especially for managing the mood (Schäfer et al., 2013). The literature describes strategies that differ in the emotions they regulate and the way they engage people in contact with music (Saarikallio & Erkkilä, 2007). Can they lead to happiness in any way?

Aims

Main aim of the study was to examine the association between music-related mood regulation strategies and subjective happiness in emerging adulthood.

Method

The sample consisted of 507 participants (61.3% females; age: M = 22.8, SD = 2.9) and was collected using the snowball method, via social networks. Two instruments were used: Music in Mood Regulation scale (Saarikallio, 2008) measuring seven strategies for mood regulation by music (*Entertainment, Revival, Strong sensation, Diversion, Discharge, Mental work* and *Solace*) and Subjective Happiness Scale (Lyubomirsky & Lepper, 1999).

Results

The results showed low negative correlation between the total score on mood regulation by music listening and the subjective feeling of happiness (r = .32, p < .001). By taking a closer look at the correlations with specific strategies, it was shown that the said correlation stems only from the low negative correlation of the *Discharge* with happiness (r = -.24, p < 0.001). Based on the scores on the *Discharge*, two groups of respondents were formed, those with a lower (n = 299) and a higher score on the mentioned strategy (n = 208). The t-test showed that the group who had low scores on the *Discharge* had higher scores on the subjective feeling of happiness (M = 4.83, SD = 1.34) compared to the group of those who had high scores on *Discharge* (M = 4.39, SD = 1.49) (t(505) = 3.5, p = .001).

Conclusions

Frequent use of the *Discharge* strategy associated with a lower subjective sense of happiness can be explained in two possible ways. Firstly, *Discharge*, strategy that involves venting anger through aggressive music, can reduce global subjective well-being if used prolongedly. On the other hand, it is possible that emerging adults with low happiness clearly choose the strategy of *Discharge* in order to get rid of negative affect. Future research should test these explanations in order to uncover whether *Discharge* may be a potentially maladaptive strategy.

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Keywords: mood regulation, emotions, music, subjective happiness, emerging adulthood

Exploring Appraisal Dimensions in Music: Toward the Development of a Standardised Appraisal Tool for Musical Emotions

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Background

Cognitive appraisal has been considered a crucial component of musical emotional episodes by several music-emotion models (Céspedes-Guevara, 2023; Lennie & Eerola, 2022; Scherer & Coutinho, 2013). These appraisals are often theoretically connected with individual and contextual differences in emotional experiences, yet are commonly only explored in isolation (e.g., familiarity). There is a notable absence of a standardized appraisal tool specific to music.

Aims

This study explores multiple appraisal dimensions, aiming to provide preliminary evidence supporting their validity in a musical context, with the aim to contribute towards the development of a dedicated music-appraisal tool.

Method

Fourteen appraisal terms from existing literature, including music-emotion models and empirical research (e.g., Silvia, 2005), were integrated into a test battery for musical appraisal. These appraisal terms were selected for their relevance to the experimental design (i.e., an online listening experiment). Musical stimuli, covering a diverse range of affective space in terms of valence and arousal, were collected from the DEAM dataset (Aljanaki et al., 2017), encompassing both more and less stereotyped examples. An online study was conducted via Prolific with 66 UK participants who used self-report to assess 14 appraisal dimensions to distinguish musical stimuli described through core-affect and interest.

Results

Appraisal dimensions were assessed based on their internal validity (Cronbach's alpha), statistical independent (Pearson's), and theoretical contribution. Ten of 14 appraisals exhibited good internal consistency and correlation independence. Exploratory factor analysis suggests musical appraisals cluster into three latent factors: *Goal-congruence, Novelty,* and *Complexity*, explaining 36%, 13%, and 18% of the data, respectively. Linear mixed modelling was employed to predict self-reported core-affect and interest, showing the latent appraisals of *Goal-congruence* and *Complexity* strongly predict ratings of valence and interest for musical stimuli.

Conclusions

Results suggest that several appraisal dimensions play a significant role in the emotional experience induced by music. A particular emphasis is placed on the role of *Goal-congruence* and *Complexity* appraisals in predicting individual differences in valence and interest. These findings are discussed in the context of advancing an open-access appraisal tool for musically induced emotions via listening. Suggestions for studies are discussed, specifically regarding confirmatory factor analysis.

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Keywords: music, emotion, appraisal, goal-directed, factor analysis

Embodiment, Emotion and Social Bonding on The Dancefloor: Initial Findings from a Replica Club Study

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Background

Research into lived experiences of electronic dance music (EDM) participation show EDM events foster feelings of connectedness with others (Cannon & Greasley, 2021). EDM is characterised by a syncopated rhythm that promotes entrainment to the beat, facilitating interpersonal synchronisation, which is positively related with social bonding (Tarr et al. 2016). On the dancefloor, entrainment engenders continuous, embodied pleasure and the conveying of pleasure through movement may lead to a powerful collective emotional experience via emotional contagion (Witek et al. 2017). Despite the potential for affective and interpersonal synchrony to foster connectedness, the extent to which these experiences may be interrelated and contribute to social bonding in an EDM context is yet to be examined.

Aim(s)

This pilot study aimed to:

- Explore affective experiences during participation in a live EDM context
- Investigate relationships between movement and affective experiences on the dancefloor
- Investigate relationships between social bonding and movement/affective experiences

Methods

Participants (n = 5) danced to a pre-recorded DJ mix in a replica club environment (a dark performance studio with dynamic lighting) on a University campus for 30 minutes while fitted with a wrist-worn accelerometer measuring movement across three axes. Participants completed a social bonding survey before and after dancing, measuring connectedness, likeability, similarity in personality and closeness with group. The post-event survey also included measures of affective experiences (including 'distributed embodied pleasure' and '*kama muta*') and other extraneous factors.

Results

Preliminary analysis at the descriptive level showed participants experienced distributed, embodied pleasure during the event. Participants overall social bonding scores increased from pre-event (M = 12.40, SD = 2.70) to post-event (M = 15.40, SD = 3.29). Frequency analysis of accelerometer data was carried out to determine entrainment values and showed participants were entrained to the tempo of the DJ mix. Scatter plots showed a positive trend between higher entrainment values and higher social bonding scores, indicating a potential positive relationship between social bonding and rhythmic entrainment. Further analysis assessing group synchrony and its relationship with social bonding and affective experiences is underway.

Conclusion

This preliminary study has potential to provide new insights into how EDM events facilitate social bonding through shared embodied and affective experiences. Initial results indicate EDM events may facilitate bonding through shared embodied and affective experiences. Follow-up studies planned using a larger sample size aim to further uncover the links between movement, affective experiences and social bonding. This data may be utilised by the nightlife industry, unveiling the processes underlying lived experiences of EDM participation that bear significant value for culture, communities, and well-being (Cannon & Theodore, 2022).

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Keywords: entrainment, synchrony, social bonding, emotion, electronic dance music

How does this music make you feel? Exploring the Structural Dimensions of Affective Musical Experience

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Background

The significance of music for individuals is mainly manifested in the affective realm. The question arises about the nature and taxonomic structure of the affective experience induced by music. Is the essence of experiencing

a musical piece rooted in distinct emotions, like 'melancholy' or 'joyful,' or are these emotions constructed from broader affective dimensions such as valence and arousal?

Aims

We will offer a review of relevant studies in order to formulate empirically based answers to the above stated question of the structure of the affective experience of music. We will present two most commonly used models of the affective experience of music and independent empirical studies that can serve as evidence in favor of or against each. The first is the model of discrete emotions, which posits basic emotions (such as joy, sadness, fear) as mutually irreducible, discrete categories of subjective reality of musical peace (Fabian, & Schubert, 2003; Hevner, 1936). The second model aims to find a reduced number of dimensions that optimally describe the space of affective experience of music. This line of research is presented in two-dimensional circumplex model, which encompasses orthogonal dimensions of valence and arousal (Russell, 2003) through models of more general affective dimensions (Egermann et al., 2015).

Main Contribution

This theoretical research offers a comprehensive review of relevant studies to empirically investigate the foundation of the affective experience of a musical piece. Included research were conducted using a highly heterogeneous methodology (survey, large-scale analysis, etc.), instruments for assessing the affective experience of music, and measures of affective experience (subjective, behavioral, physiological, and neurological) with participants from various cultures (from indigenous to developed Western societies) and time periods. Although the discrete emotions approach demonstrated greater consistency among participants in assessing compositions than the dimensional approach, the analysis of continuous responses, provided by participants throughout the entire duration of the composition, indicates that the affective experience of a musical excerpt cannot be encapsulated by a single discrete emotion. The existing findings support the conclusion that feelings associated with music are neither entirely discrete nor entirely blendable but are distributed along specific gradients of subjective experience.

Implications

We will summarize the key findings and formulate a comprehensive response to the central issue raised in this paper that could shed light on how music triggers subjective experiences.

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Keywords: affective experience, musical perception, discrete emotions, circumplex model

Oral session 21 **Interdisciplinary encounters**
Library Conference Hall, 2nd floor
Chair: Sanja Kiš Žuvela

Musicology: A new space for psychology?

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Background

Since Guido Adler's seminal article on musicology, psychology has been recognised as a legitimate discipline that can contribute to the study of music. A very rich tradition of the psychology of music has been developed since this seminal moment. But research in this field has mainly focused on the reception of music by individuals. Symmetrically, after the days of musicography when works were 'explained' by the 'psychology' of their creators, twentieth-century musicology has largely been built on the relative marginalization of psychology as a field for explaining the production of music by individuals. This was achieved firstly by emphasizing music theory and secondly by giving priority (through the cultural anthropology of music) to environments of all kinds: social, political, cultural, etc. In both cases, the role of the individual is downplayed or even invisible.

Aims

The aim of this paper is to propose a possible new position for psychology, taken in a broad sense, in music studies, both in terms of its production and its reception.

Main contribution

A decisive development in the twenty-first century has seen the affirmation of cognitive sciences applied to music and the theory of affects. Alongside musical analysis and the examination of cultural and other environments, these two fields are enabling a return to the individual's relationship with music. By shedding light on the workings of the musical brain and redefining the role of affects, they provide a better understanding of both the reception of music and its production. But these advances do not entirely exhaust the question of the individual relationship, in the course of both reception and production.

Implications

This is where psychology - and more broadly psychoanalysis and philosophy - can find a new position by examining the individual conditions of both production and reception. We will look at two aspects of this relationship. 1. On the production side, the role of demons, in this case obsessions, addictions and other controllable or uncontrollable forces. This aspect will be addressed through the notion of formativity developed by the Italian philosopher Luigi Pareyson. 2. On the reception side, the search for the past beyond the perception of musical forms, which a large part of the psychology of music has tended to favor. The hypothesis put forward is that hearing triggers emotions in the receivers that are anchored in past experiences that are more or less close or distant. The preferred vector is no longer form but sound. The 'dark precursor' hypothesis put forward by Arthur Schopenhauer will also be discussed.

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Keywords: psychology, psychoanalysis, time, memory, Schopenhauer.

Exploring Musical Addiction: An interdisciplinary review from Neurobiology, Psychology, Sociology, and Musicology

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Background

Musical pleasure triggers a release of dopamine in the reward circuit, and some extreme listeners compare music to a drug that provides them with huge relief. We examine the possibility of musical addiction by proposing an interdisciplinary exploration of the literature on the concept of addiction and listening practices. Drawing on research in neurobiology, psychology, sociology, and musicology, we demonstrate the multiple dimensions of pleasure in the listening experience and the way in which it modulates the experience of listeners.

Aims

This review aims to explore the following questions:

1. Evolution of the concept of addiction: Since Goodman (1990) we have been questioning the blurred boundary between the normal and the pathological and between passion and addiction.

2. Musical pleasure, dopamine, and emotional regulation: here we highlight the neurobiological dimension of musical pleasure (Mas-Herrero et al., 2023) and its link with addictive processes, and discuss the link with musical mechanisms of emotional induction (Juslin, 2013).

3. Profile of extreme listeners: we will present the typologies of potential addicted listeners derived from previous national surveys ("musicophiles" or "musichaolics"), and discuss the reasons underlying listeners' engagement in musical activities (Hennion, 2004), focusing particularly on repetitive listening as the potential preferred practice of music-addicted individuals.

4. Mediated listening: the final section examines the influence of the media on music addiction in the light of media theory. We analyze the way in which musical listening responds to a need within the framework of a mediated listening experience and a favorable environmental context, which questions the relationship to art from a pragmatic perspective.

Main contribution

By integrating these perspectives, this review proposes a framework for analyzing the listening experiences of extreme listeners, characterizing the factors that can make listening addictive for the listener with a processual and integrative framework of the listening experience in three phases (pre-listening, listening and post-listening) and eight dimensions to better describe listeners' listening strategies.

Implications

The framework for analyzing listening experiences enables us to make a clear distinction between the dimensions that can be controlled by the listener (context, musical selection, listening mode) and those that are beyond the listener's control or require learning (predictions and expectations, for example). We show how mastering these dimensions can transform musical addiction into positive emotional regulation and guide the development of more effective therapeutic and preventive approaches.

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Keywords: musical addiction, emotion regulation, musical reward.

Soundography: A Spacetime Mapping Experiment

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Background

The beginning of the twentieth century have seen the burgeoning, and the rapid development of what has been termed often as sound art: this form of composition of sounds has proliferated, and increased constantly, through experiments, research, with a modified relationship to the space in which sound art is produced, and experienced. The emergence of this novel form of production, organization, and recording of sound, have brought questions into the similarities or differences with the traditional forms of composition and music making (Labelle, 2010).

Aims

With an investigation into the phenomenology of perception (Merleau-Ponty, 2005), by way of a personal practice in soundography (sic), which may be articulated as the mapping of space through sound (Truax, 2000), this article attempts to delineate fundamental characteristics distinguishing the form and praxis of sound art, as opposed to the traditional concept of music composition.

Accompanied by a qualitative content analysis of first-hand experience; the scrutiny of salient sonic features of the space examined; the analysis of the gestures of the human body in space (habits, routines); I will posit that space is the sine qua non, out of which sound art is intrinsically constructed, perceived, and emplaced (Howes, 1991). A space not only envisioned or alluded to, as in composition; but space that is the very lieu of sonic art expressed in its physical actualization.

Main Contribution

By designating space as the specific quality that distinguishes sonic art from traditional composition, we must analyze what species of space is under consideration, and what sorts of tradition in composition we are looking at. To proceed with such evaluations, I will follow a phenomenological path, with first-hand experience, and collection of quantitative data: this will unfold an understanding of the surrounding space perceived through sound, generating a soundographic map. Doing so will address what are the characteristics of the space, its acoustic content, and conversely, what sort of compositional procedures are under investigation.

Implications

Several questions arise: how does sound art differ from composition and how eventually do the two relate to each other? How soundography, as a method to map out space, differs from traditional cartography, and the latter reliance on visual cues? And what are the further repercussions of perceiving space with different sets (or gathering schemes) of sensuous feedback? The magnification of alternative ways of experiencing the space we live in, could bring into focus new modalities of music making? The common denominator of this diverse range of questions in relationship to sound experience, is space (Lefebvre, 2013).

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Keywords: phenomenology, emplacement, urbanism, acoustic communication, composition, sound art

With a Pinch of "sats". The Psychological Significance of Performative Impulse in Performance of Classical Music.

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Background

Theoretical background of this presentation is the interdisciplinary research focusing on similarities and synchronicities of the performing arts (Carlson, 2004). The focus is on the "sats" which is being defined as theoretical and practical phenomena. According to Performance Anthropology, "sats" is being defined as an impulse and counter impulse, while defining all performing arts as sharing a similar base. Research in *Psychology for Musicians* (Lehmann et al., 2007) and *Psychology of Performance* (Cotterill, 2018) has shown and proven a very strong relation to the above statements, providing a convincing argument for this subject of this presentation.

Aims

The aim of this research would be to rethink the very specific expertise of the performers in classical music, taking into account the standpoint of the performance theory. More specifically, the aim is to underline the phenomena

of *sats* (Barba, 1995) and have it reviewed and taken into consideration as the practical tool for classical music performers. The main aim is to offer the (re)freshness of methods and techniques that classical music performers use during preparation and/or performance.

Main contribution

The knowledge, expertise and artistry of classical music performers has been persisting and improving through centuries. Recently, the new ways and forms of mental training for musicians have become a significant aspect of the performance process, creating a significant difference (Lehmann et al., 2007). This presentation presents options to enrich the quality of classical music performers' expert knowledge and artistry by applying *sats* phenomena, both through theory and practice. Expected contribution would be stronger engagement and preparations presence, with more confident, stress-free and authentic performance.

Implications

Lifelong learning for musicians, in order to continuously improve expert skills in music – might seem as a hard job (sometimes even harsh). Having that in mind, the implication of this presentation is to present the theoretical and practical examples of sats application and implication. The examples are based on the interaction of the psychology for musicians, performance psychology, performance theory and experience from pedagogical and artistic practise. Further directions to explore and investigate are oriented towards creativity and innovation in the field of classical music *as* performance.

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Keywords: classical music, performance theory, psychology of performance, psychology for musicians