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Psychology & Music

Interdisciplinary Encounters

Book of Abstracts

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October 14 - 17

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UNIVERSITY OF LJUBLJANA | FF Faculty of Arts

4th International Conference
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BOOK OF ABSTRACTS

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EDITORS' NOTE

Dear colleagues and friends,

Welcome to the fourth international conference titled *Psychology and Music – Interdisciplinary Encounters* (PAM-IE Ljubljana 2026), held from 14 to 17 October 2026 at the University of Ljubljana, Academy of Music. Building on the successful conferences in Belgrade (2019, 2022) and Zagreb (2024), PAM-IE continues to bring together an international community exploring the psychological, educational, artistic, social, and cultural dimensions of music, with a special focus this year on music for sustainability, well-being, and positive societal change.

This book of abstracts presents more than 150 contributions from researchers, artists, educators, clinicians, and practitioners worldwide. Representing disciplines such as psychology, neuroscience, education, medicine, music therapy, sociology, anthropology, philosophy, artificial intelligence, technology, and artistic research, these contributions demonstrate the value of interdisciplinary collaboration in advancing our understanding of music and addressing contemporary challenges.

We are deeply grateful to the Programme and Organizing Committees, the Scientific Committee, reviewers, keynote speakers, workshop leaders, volunteers, sponsors, institutional partners, and all authors and participants whose dedication has made PAM-IE 2026 possible.

We hope this volume inspires new ideas, collaborations, and a shared commitment to harnessing the transformative power of music for a more sustainable, compassionate, and interconnected future.

Katarina Habe, Špela Pučko & Maruša Laure
Editors of the *Book of Abstracts*
PAM-IE 2026 – *Psychology and Music: Interdisciplinary Encounters*

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VENUES

14 – 17 October 2026

Academy of Music, Kongresni trg 1, 1000 Ljubljana
https://maps.app.goo.gl/TwQV3LERijPEZeSR7

Registration, welcome drink, coffee breaks, poster session:
Entrance Hall, Ground Floor

Keynote lectures, welcome reception, closing ceremony:
Julij Betetto Hall, 1st Floor

Coffee with keynote speaker, workshops, book presentations, oral sessions, symposiums:
Primož Kuret Hall, Ground Floor
Julij Betetto Hall, Marijan Lipovšek Hall, Trio Lorenz Hall, 1st Floor
Breda Oblak Hall, 3rd Floor

ABSTRACTS

Wednesday, October 14, 2026

Academy of Music, University of Ljubljana, Kongresni trg 1, 1000 Ljubljana

15:15 – 16:15: Registration of participants and attendees
Entrance Hall, Ground Floor

16:15 – 16:45: Opening ceremony
Julij Betetto Hall, 1st Floor

16:45 – 17:45: Keynote speaker Caroline Curwen
When Music Paints: Colour, Emotion, and Imaginative Listening
Julij Betetto Hall, 1st Floor

17:45 – 18:15: Coffee with Caroline Curwen[1]
Trio Lorenz Hall, 1st Floor

17:45 – 18:30: Workshop session 1
Workshop 1: Marijan Lipovšek Hall, 1st Floor
Nina Rotner, Restoring Ease and Self-Regulation: An Experiential Introduction to the Alexander Technique for Musicians

Workshop 2: Julij Betetto Hall, 1st Floor
Dragana Filimonović, Relax Concerts with Breathing – An Integrative Approach of Music and Breathing Techniques in Mental Health Care

Workshop 3: Primož Kuret Hall, Ground Floor
Barbara Tanze, Inquiry-Based Learning Principles and Breathwork – A Somatic Exploration

18:30 – 19:30: Welcome drink
Entrance Hall, Ground Floor

19:30: Concert
Ursuline Church of the Holy Trinity, Slovenska cesta 21, 1000 Ljubljana

[1] *This is an informal 30-minute discussion with the keynote speaker, moderated by a chair. It offers participants an opportunity to ask further questions and continue the conversation in a relaxed setting.*

Wednesday, October 14, 2026

16:45 – 17:45
Keynote speaker Caroline Curwen
Julij Betetto Hall, 1st Floor

Caroline Curwen
Durham University (United Kingdom)
caroline.curwen@durham.ac.uk
https://carolinecurwen.com/

Dr Caroline Curwen is a Leverhulme Early Career Fellow at Durham University (UK). Her research explores musically evoked narrative imaginings in synaesthetic and non-synaesthetic expert musicians, combining approaches from music psychology, cognitive science, and phenomenology. Her work centres on perception, embodiment, and imagination, highlighting the role of individual differences in inclusive models of musical cognition. She is Associate Editor for *Psychology of Music*, Consulting Editor for *Musicae Scientiae*, and Treasurer of the European Society for the Cognitive Sciences of Music (ESCOM), and has published in leading journals including *Psychological Research*, *Consciousness and Cognition*, and *Journal of Experimental Psychology: General*.

When Music Paints: Colour, Emotion, and Imaginative Listening

My research is grounded in my own experience of seeing colours and shapes when I hear music – known as synaesthesia. I have a conscious and automatic response to music that plays a fundamental role in my musical sense-making. These experiences reveal how our perceptions of the world often differ from one individual to another yet can also illuminate shared patterns of emotion and narrative in listening. Building on this, I explore how music can evoke inner stories and scenes –what I call musically evoked narrative imaginings – and how these reveal the rich, imaginative ways in which we connect through sound.

17:45 – 18:30

Workshop session 1

Marijan Lipovšek Hall, 1st Floor

Workshop 1: Restoring Ease and Self-Regulation: An Experiential Introduction to the Alexander Technique for Musicians

Nina Rotner
MDW, Vienna, Austria

Background
Musicians and music educators work under sustained physical and attentional demands. Habitual patterns of unnecessary effort may contribute to discomfort, fatigue, and stress, and can also influence how efficiently musicians learn and teach. The Alexander Technique (AT) is a pedagogical method of body–mind education that supports individuals in recognizing such habits and developing more efficient coordination in everyday and skilled activity.

Aims
This workshop introduces basic AT principles and explores their practical relevance for musicians and pedagogues. It aims to provide clear first steps for applying AT in practice, rehearsal, teaching situations, and performance preparation, with an emphasis on ease, coordination, and adaptive self-regulation.

Short outline of activities to be undertaken by the presenters/audience
Participants will be guided through short experiential activities focused on the following core principles:
- noticing habitual effort patterns in simple actions (sitting, standing, moving);
- introducing a "pause" before reacting, and exploring choice in coordination;
- developing clearer anatomical awareness and internal orientation for balance and breathing in action
- transferring the principles to musicians' tasks (instrument-ready positions, starting sound, repetition, teaching cues).

Implications for practice
Participants will leave with accessible first-step procedures that can be integrated into warm-up, practice breaks, rehearsal recovery, and daily self-care routines. The workshop supports sustainable engagement with musical work through reduced over-effort, improved ease, and more adaptive stress responses.

Specific value of the workshop for the conference
The workshop provides an embodied complement to conference discussions on music and well-being by translating performer-health concepts into practical experiences. It offers a shared experiential basis for interdisciplinary exchange among musicians, educators, and researchers interested in sustainable approaches to artistic work.

Keywords
Alexander Technique, Musicians' Health, Performance Well-Being

Julij Betetto Hall, 1st Floor

Workshop 2: Relax Concerts with Breathing – An Integrative Approach of Music and Breathing Techniques in Mental Health Care

Dragana Filimonović
Zdrave vibracije Studio, Sremska Mitrovica, Serbia

Background
Emotional dysregulation and chronic stress significantly impair cognitive readiness, deep learning, and mental well-being. Traditional sound therapies often lack a structured pedagogical framework, while standard mental care frequently misses experiential, non-pharmaceutical interventions. Developed at the "Zdrave Vibracije" studio, the "Relax Programme" addresses this gap by exploring the therapeutic intersection of live musical performance, targeted breathing techniques, and pedagogical wellness. This methodology builds upon previous multimedia, performance-based pedagogical projects (Filimonović, 2010, 2013) and non-instrumental practice frameworks (Filimonović, 2012).

Aims
This workshop aims to demonstrate how integrating acoustic vibrations and rhythmic breathwork can reduce stress, induce a theta brainwave state, and unlock internal psychological resilience. Furthermore, it aims to share longitudinal qualitative insights from field applications with vulnerable cohorts and discuss the methodological transition from subjective field reporting to a rigorous mixed-methods research design.

Short outline of activities to be undertaken by the presenters/audience
The 60-minute interactive workshop operates on an experiential model divided into two distinct segments. First, the presenter will lead a five-minute introduction focusing on a 4:4:4 rhythmic breathwork technique and anti-stress indicators, allowing the audience to physically engage and symbolically release internalized stressors. Second, the audience will experience a 55-minute live acoustic performance structured around five natural elements (air, water, fire, earth, metal) using the ancient lyre, Rav Vast, Native American flute, Celtic harp, Innato flute, chimes, and rainmakers.

Implications for practice
Three-year longitudinal data (2023–2026) with psychiatric beneficiaries at the Caritas Daily Care Centre "St Anastasia" and public sessions since 2024 demonstrate significant clinical and educational implications. The results show a 98% improvement in sleep quality and a 70% increase in daily operational efficiency among participants. Only 2% reported no effect. Sustained participation under psychiatric supervision contributed to emotional catharsis, trauma release, and a supervised reduction in pharmaceutical dependency, proving that stabilizing emotional states is an essential prerequisite for deep learning and self-healing.

Specific value of the workshop for the conference
This workshop provides high value by offering rare, multi-year qualitative insights from practical interventions with vulnerable mental health cohorts. Additionally, it fosters critical academic debate on methodological transparency. By openly addressing current limitations – such as the absence of baseline physiological metrics – the session outlines future research strategies for transitioning from field observations to precise mixed-methods tracking of specific cohorts.

Keywords
Sound Therapy, Stress Resilience, Empirical Pedagogy, Mental Health, Emotional Regulation

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Filimonović, D. (2013). *Concentration in Practice* (Training programme). Institute for the Improvement of Education, Republic of Serbia.
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Primož Kuret Hall, Ground Floor

Workshop 3: Inquiry-Based Learning Principles and Breathwork – A Somatic Exploration

Barbara Camille Tanze
Zavod Voice up, Begunje pri Cerknici, Slovenia

Background
There has been growing interest in breathwork in the last few years, making space for many different techniques, methods and approaches that view breathing from different angles. In this workshop, we are going to explore breath mechanics using the concept of inquiry-based learning in order to support confidence in sensory perception while building clear physiological concepts.

Aims
By the end of the workshop, the participants will be able to:
- locate key anatomical structures involved in breathing and understand their function in breathing;
- clearly explain diaphragmatic function in the context of the surrounding structures;
- use self-massage techniques to release excessive tension to allow for maximum respiratory efficiency;
- use inquiry-based instructions that encourage free exploration of sensory feedback.

Short outline of activities to be undertaken by the presenters/audience
- Welcome, outline of the class.
- Importance of inquiry-based learning when working with breath and voice.
- Interactive exploration of respiratory structures: location, palpation and function
    - Ribs, sternum and intercostal spaces
    - Diaphragm
    - Neck and shoulder muscles
    - Muscles of the abdominal wall
- Mobility and awareness exploration for optimal breathing mechanics
    - Shoulders and neck awareness
    - Rib cage mobility
    - Pressure regulation for phonation – Flexiflow device
- Application and integration discussion, contraindications, Q&A.

Implications for practice
The goal is for participants to be able to understand respiratory mechanics clearly and instruct students, clients and patients using inquiry-based learning principles. They will learn simple and efficient ways to release excessive tension that might be limiting respiratory efficiencies in

themselves and their target populations. Inquiry-based learning principles can be applied to any other field of interest.

Specific value of the workshop for the conference

Given that the importance of breathing is a growing part of all of the subjects discussed at the PAM-IE conference (music, physiology, psychology, health and well-being in general), this interdisciplinary workshop aims to help participants create a safe environment when using any breathing exercises or other pedagogical concepts. The use of the Flexiflow is innovative and exclusively presented by the author, who is also the inventor and holds the patent for the device.

Keywords

Breathing Mechanics, Inquiry-Based Learning, Education

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Thursday, October 15, 2026

Academy of Music, University of Ljubljana, Kongresni trg 1, 1000 Ljubljana

8:00 – 9:00: Registration of participants and attendees
Entrance Hall, Ground Floor

9:00 – 10:00: Keynote speaker Paul Harris
Toward Integrated Musicianship: Linking Psychological Processes and Music Education
Julij Betetto Hall, 1st Floor

10:00 – 10:30: Coffee with Paul Harris
Primož Kuret Hall, Ground Floor

10:30 – 11:15: Workshop session 2
Workshop 4: Marijan Lipovšek Hall, 1st Floor
Cheryl Ockrant, How Free Improvisation Can Bridge from Trauma and Anxiety to Performing with Joy

Workshop 5: Trio Lorenz Hall, 1st Floor
Evangelia Papanikolaou & Artemis Christodoulou, Music Breathing for Well-Being: A Music-Centred and Mindfulness-Oriented Practice

Workshop 6: Primož Kuret Hall, Ground Floor
Milena Lipovšek, Body-Mind Healing with Music: Psychotherapy Beyond Words

11:15 – 12:30: Symposium session 1
Symposium 1: Marijan Lipovšek Hall, 1st Floor
Josip Šabić: The Motivation, Well-Being, and Aspirations of Music School Students

Symposium 2: Trio Lorenz Hall, 1st Floor
Špela Loti Knoll: The Diversity of Music Therapy Practice and Domains

12:30 – 14:15: Presentations of new books
Julij Betetto Hall, 1st Floor

Book presentation 1:
Ana Butković & Sanja Kiš Žuvela, *Proceedings of the 3rd International Conference "Psychology and Music –Interdisciplinary Encounters"*, Zagreb, 23–26 October 2024

Book presentation 2:
Katarina Habe, *How to Shine on Stage: Factors of Successful Musical Performance*

Book presentation 3:
Dragana Filimonović, *Vežbanje bez vežbe*

Book presentation 4:
Alja Gregorinčič & Ilonka Pucihar, *Joga za psihofizično zdravje in blagostanje glasbenikov*

Book presentation 5: Lia Katarina Kompan Erzar & Petra Brdnik Juhart, *Glasba zdravi*

14:15 – 15:45: Lunch break

15:45 – 17:15: Symposium session 2
Symposium 3: Primož Kuret Hall, Ground Floor
Ana Butković: Music Education and Positive Outcomes in Adulthood

Symposium 4: Julij Betetto Hall, 1st Floor
Katarina Habe: Music as a Facilitator of Sustainability

Symposium 5: Trio Lorenz Hall, 1st Floor
Kaja Korošec: Bridging Music, Autism, and Neurodiversity-Affirming Research

17:15 – 17:30: Quick refreshment / movement break

17:30 – 19.00: Round table: RNPaM as a Road to Sustainable Regional Networking
Julij Betetto Hall, 1st Floor

19:00 – 20:30: Guided tour through Ljubljana
Entrance Hall, Ground Floor

Thursday, October 15, 2026

9:00 – 10:00
Keynote speaker Paul Harris
Julij Betetto Hall, 1st Floor

Paul Harris

Royal Academy of Music (United Kingdom)
pauldavidharris@icloud.com
https://www.paulharristeaching.co.uk/

Paul Harris is one of the UK's most influential music educationalists. He studied the clarinet at the Royal Academy of Music, where he won the August Manns Prize for outstanding performance in clarinet playing and where he now teaches. He is in great demand as a teacher, composer, and writer (he has over 600 publications); he gives the occasional recital and his inspirational masterclasses and workshops continue to influence thousands of young musicians and teachers all over the world in both the principles and practice of musical performance and education.

Toward Integrated Musicianship: Linking Psychological Processes and Music Education

This keynote examines interdisciplinary links between psychology and music education through concepts developed in Paul Harris's work, particularly the Simultaneous Learning framework. Harris's approach positions musical skills – listening, performing, reading, and creating – as interconnected cognitive processes rather than discrete tasks. Drawing on this perspective, the presentation outlines how integrated pedagogical models can support more coherent skill acquisition, strengthen musical understanding, and enhance learners' cognitive and affective engagement. The keynote will consider implications for educational practice, curriculum design, and the broader role of psychologically informed methodologies in fostering effective and transferable musicianship.

10:30 – 11:15

Workshop session 2

Marijan Lipovšek Hall, 1st Floor

Workshop 4: How Free Improvisation Can Bridge from Trauma and Anxiety to Performing with Joy

Cheryl Ockrant
York University, Toronto, Canada

Background
With the growing exposure of abuse by music teachers toward their students, the structure of music teaching may be questioned as a contributor to the problem. Although exposing these abuses is urgent, we do not often hear about students who fall by the wayside, either by giving up music altogether or continuing as amateur or professional musicians while carrying debilitating performance anxiety throughout their lives and careers. It cannot be enough simply to state that these abuses happen; those who have sustained trauma while at their instruments deserve to play again with joy, security, and physical and psychological sustainability. Not all experiences of listening to or participating in music are relaxing or "healing" for those who have endured abuse while at their instrument or continue to experience the effects of long-term anxiety. Polyvagal Theory offers a way of understanding how trauma and anxiety work within the body, including how the vagus nerve relates to connection and communication beyond the visible effects of performance anxiety.

Aims
Free improvisation can be a gateway to individual growth and the rechannelling of one's relationship with an instrument. By understanding how trauma and anxiety work within the body through Polyvagal Theory, we can help the nervous system develop new connections to our instruments and support creative growth and resilience in performance. The workshop aims to reduce the power structures associated with the historical "music teacher as god" and open possibilities for independence of thought and creativity while still being a "good student". It also explores themes in classical music training that condition students to accept power imbalances, with the hope that formative free improvisation can buffer against future trauma or abuse.

Short outline of activities to be undertaken by the presenters/audience
By focusing less on traditions of instrumental practice or prior levels of formal training, participants will explore ways of using their instruments while staying in the "now", finding interactive sounds, and listening without hierarchy. The workshop will introduce ways to gently re-establish instrumental practice after debilitating trauma, beginning with the relationship to oneself at the instrument and then moving toward social connection through music. Audience participation will be included if time allows.

Implications for practice
Learning to recognize how emotional distress signals manifest in the body, and how the nervous system works toward survival, may help musicians develop safer and more sustainable relationships with their instruments. Free improvisation may support presence, creative growth, resilience, independence of thought, and non-hierarchical listening. It may also offer a gradual pathway from individual musical engagement toward social connection and performance.

Specific value of the workshop for the conference
This workshop draws attention not only to the urgent need to expose abuse in music teaching, but also to students who abandon music or continue while carrying long-term performance anxiety. By

bringing together free improvisation, Polyvagal Theory, trauma awareness, instrumental practice, and audience participation, it offers a practical contribution to safer and more sustainable music education.

Keywords
Performance Anxiety, Polyvagal Theory, Trauma, Free Improvisation, Joy

References

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Trio Lorenz Hall, 1st Floor

Workshop 5: Music Breathing for Well-Being: A Music-Centred and Mindfulness-Oriented Practice

Evangelia Papanikolaou & Artemis Christodoulou
SONORA Organisation for Music Therapy & Research, Athens, Greece

Background

Music and breathing both play a vital role in supporting mental and physical well-being. Music Breathing is a receptive music therapy method that combines these two elements in a structured approach, designed to harness their regulatory and therapeutic potential across a variety of settings. Developed by Swedish psychiatrist Dr Dag Körlin as an adaptation of the Guided Imagery and Music (GIM) method, Music Breathing was initially created to support individuals experiencing psychological trauma and PTSD (Körlin, 2019a,b). Over time, it has evolved into a versatile and accessible approach that can be applied in psychosocial, educational, and corporate contexts to reduce stress, enhance well-being and resilience, and promote self-care (Jerling & Heyns, 2020; Lee et al., 2025).

Aims

Participants will gain an understanding of the core mechanisms involved in a music–mindfulness experience regulated through deep breathing. While music can sometimes evoke heightened emotional or physiological arousal, conscious attention to the breath serves as a natural grounding and self-regulating anchor.

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

The workshop will mainly be experiential, allowing the participants to understand the mechanisms involved in Music Breathing based on their own experience. The full protocol of the three-step model will be presented (Discovery Breathing, Silent Breathing, Music Breathing) followed by mandala-drawing to help with integration of the experience, and verbal processing. There will be time for discussion with regard to the basic theories Music Breathing is built upon, and its benefits in different settings.

Implications for practice
Music Breathing offers a structured, adaptable method that can be applied across clinical, educational, and organizational settings to support emotional regulation, stress reduction, and self-awareness. It provides professionals with a practical tool for grounding and stabilization, particularly in contexts involving heightened arousal or stress, while also deepening understanding of the psychophysiological mechanisms through which music and breathing influence well-being, reflective processes, self-control and self-management skills.

Specific value of the workshop for the conference
The workshop offers an experiential bridge between music psychology theory and embodied practice, showing how music and breath regulation shape emotional and physiological states. It directly supports the conference's focus on music and well-being through a practical, research-informed approach applicable across various settings.

Keywords
Music Breathing, Receptive Music Therapy, Mindfulness, Emotional Regulation

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Primož Kuret Hall, Ground Floor

Workshop 6: Body-Mind Healing with Music: Psychotherapy Beyond Words

Milena Lipovšek
SFU, Ljubljana, Slovenia

Background
In the Integrative Relational approach, the core of healing lies in the contact-oriented relationship between therapist and client (Erskine et al., 1999). However, sometimes traditional "talk therapy" often fails to reach the client's implicit content or his script. This workshop explores how music can be a profound potential for body and mind healing, because music is offering a resonant bridge to the client's internal world that language cannot provide. Utilizing some of the concepts from Integrative Psychotherapy, we will examine how music plays vital role in everyone's life, providing also valuable insights into the relational dimension of persons functioning. Participants will learn how music facilitates a deeper level of affective attunement. Through experiential exercises, we will demonstrate how musical intervention can bypass cognitive defences, bringing the "unthought known" into the relational space to promote the integration of fragmented ego states.

Aims

- Facilitate affective attunement: To explore how music serves as a primary medium for affective and developmental attunement when working with pre-verbal state, anxiety, trauma and unmet relational needs.
- Address integration of personality: To explore how relationally focused integrative psychotherapy promotes the integration of the main dimensions of human experience: cognitive, affective, behavioural and physiological with the awareness of social and transpersonal aspects.
- Access and integrate ego states: To teach participants how to use music as a "relational key" to reach fragmented or archaic ego states that are inaccessible through language, facilitating their integration into a functioning whole.
- Activation of the right brain hemisphere communication: To show how we can use music as a tool to circumvent intellectualization, allowing for a deeper, phenomenological experience of the "here-and-now" therapeutic relationship.
- Enhance therapist presence and involvement: To cultivate the therapist's capacity for therapeutic involvement and resonance, using music to strengthen the contact-oriented relationship and provide a sense of "being with" the client.

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

- Demonstration of theory and practice (experiential exercise): Participants work in pairs and bigger groups to practice non-verbal and verbal connection with different dimensions of human functioning.
- Using music as a medium to emotionally connect with the self or significant others: A clinical demonstration where specific musical excerpts are used so that participants can identify which music evokes feelings, memories, thoughts and physical responses.
- Integration and meaning-making: A final bridge session where participants practise moving from the experience with music back into verbal integration, ensuring the integration of fragmented parts of the self into a cohesive narrative.

Implications for practice

- Accessing the non-verbal realm: This approach provides a practical roadmap for therapists to reach the archaic ego states and developmental interruptions that occurred early in a person's life, enabling healing where words are absent.
- Using mindfulness and compassion as meta-processes of change: Mindful awareness and compassion promote change in each dimension of human experience.
- Bypassing script-bound defences: Music serves as a non-threatening entry point to bypass cognitive defences and intellectualization. This allows for a direct phenomenological experience, making it easier to challenge and reorganize rigid script beliefs.

Specific value of the workshop for the conference

- Clinical innovation & synthesis: This workshop offers a unique integration of Erskine's Relational Model with specialized music-based interventions. It addresses the growing demand for methods that bridge the gap between traditional talk therapy and expressive arts.
- Practical utility (evidence-based tools): Attendees gain concrete insights in how music can be used in psychotherapeutic working with clients. This provides immediate value for practitioners seeking to enhance their clinical efficacy with clients who are strong in the cognitive dimension or highly defended clients.
- Advancement of developmental work: The workshop provides a high-value framework for reaching different ego states and clients' interpersonal experiences. By focusing on music as a primary tool for affective attunement, it offers a specific methodology for healing.
- Applicability across populations: The values presented are cross-disciplinary, making the workshop relevant for those working with children, adults individually or in groups.

Keywords
Integrative Psychotherapy, Psychotherapy Beyond Words, Attuned Involvement, Integration of Personality, Relational System

References
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11:15 – 12:30
Symposium session 1

Marijan Lipovšek Hall, 1st Floor
Symposium 1: The Motivation, Well-Being, and Aspirations of Music School Students

Josip Šabić
Institute for Social Research in Zagreb, Zagreb, Croatia

Background of the symposium
Music school students navigate the demands of intensive artistic training alongside general academic requirements. Together, these pressures influence their motivation, well-being, and future aspirations. Although previous research has emphasized how motivational quality, individual resources, and contextual factors contribute to students' academic functioning and adjustment (e.g. Bakker & Mostert, 2024; Tian et al., 2014), we still know relatively little about how these elements shape their emotional experiences, well-being, and long-term goals within music education.

Aims of the symposium
The symposium aims to showcase research examining Croatian music school students' motivation, well-being, and educational aspirations.

Contributors

1. Under Pressure: Self-Compassion, School–Life Imbalance, and Life Satisfaction in Music School Students
Pikić Jugović, I., Šabić, J. and Petrović, D.

Background: Students attending music schools often face elevated demands due to the combination of general education requirements and intensive music training, which may increase the risk of imbalance between school obligations and private life. Drawing on parallels with work–family conflict research, such an imbalance is expected to be negatively associated with well-being. Guided by the Study Demands–Resources (SD–R) theory (Bakker & Mostert, 2024), self-compassion was conceptualized as a personal resource, while school–private life imbalance was treated as a study demand.

Aims: This study examined whether self-compassion moderates the relationship between school–private life imbalance and life satisfaction among music school students.

Method: The study included two samples of Croatian music school students: 255 sixth-grade students attending elementary music schools (M_{age} = 14) and 343 secondary music school students (M_{age} = 16). Self-compassion was assessed using the Self-Compassion Scale – Youth Version (SCS–Youth; Neff et al., 2021). School–private life imbalance was measured with a scale developed for this study, assessing the extent to which music school obligations interfere with other activities and free time. Life satisfaction was assessed using a single-item global measure (Vala & Costa-Lopes, 2010). The hypothesized moderation model was tested using Hayes' PROCESS macro (Model 1), separately for each sample.

Results: Among secondary music school students, both school–private life imbalance and self-compassion showed significant main effects on life satisfaction, whereas their interaction effect was not significant. Greater imbalance and lower self-compassion were associated with lower life satisfaction. In the elementary music student sample, only self-compassion showed significant main effect on life satisfaction. Neither the main effect of school–private life imbalance nor the interaction effect were significant for elementary school students. This overall pattern was consistent across all self-compassion components, including both the positive dimensions (self-kindness, common humanity, mindfulness) and the reverse-coded negative dimensions (self-judgment, isolation, and overidentification).

Conclusions: The findings identify self-compassion as a consistent personal resource associated with greater life satisfaction in both elementary and secondary music school students. School–private life imbalance emerged as a relevant study demand only among secondary students, suggesting developmental differences in how students experience and manage competing academic and musical demands. Contrary to expectations derived from SD–R theory, self-compassion did not moderate the relationship between imbalance and life satisfaction. Although self-compassion appears to support overall well-being, it may not be sufficient to buffer the detrimental effects of sustained imbalance between school and private life. Interventions aimed at promoting music students' well-being may therefore need to address both internal resources, such as self-compassion, and contextual or structural sources of overload.

2. Motivation and Music Performance Anxiety in Music Education

Vukelić, A., Brković, I. and Butković, A.

Background: Music performance anxiety (MPA) has received increased attention within music psychology. However, empirical research has largely focused on music students and professional musicians (de Lima et al., 2024). Despite the assessment- and performance-oriented nature of music education, research on MPA in children and adolescents remains limited, representing an important gap in the literature (de Lima et al., 2024; Papageorgi, 2022). Motivation has been identified as a key factor shaping psychological responses in performance contexts. According to Self-Determination Theory (SDT), motivation influences the degree to which behaviour is autonomous or controllably regulated (Ryan & Deci, 2024). Research suggests that controlled forms of motivation

may heighten anxiety, whereas autonomous motivation may support more adaptive functioning (Vansteenkiste et al., 2010).

Aims: The aim of this study is to examine associations between MPA and motivational regulation in adolescent music school students, and to explore how these associations are subjectively experienced.

Method: The study employs a mixed-methods design. The quantitative study includes sixth-grade students enrolled in primary music schools (N = 250, aged 12–15) and students from secondary music schools (N = 338, aged 15-19). MPA is assessed using the Kenny Music Performance Inventory for Adolescents, and motivation to attend music school is measured using an adapted self-regulation scale assessing external, introjected, identified, and intrinsic regulation. Planned analyses include correlational and hierarchical regression models examining the contribution of gender, age and motivational regulation to MPA. The qualitative study focuses on adolescent music school students (aged 14–19) and involves collecting narrative data on motivation and MPA, which will be analysed using thematic analysis. Quantitative data collection is complete. To date, nine qualitative interviews have been conducted; all collected data are currently being analysed while further interviews are ongoing.

Results: Quantitative analyses will address whether controlled forms of motivation, particularly external and introjected regulation, are associated with higher levels of MPA, and whether autonomous forms of motivation show weaker or protective associations. Gender and age differences will also be examined. Qualitative analyses will focus on emerging themes related to motivation and MPA, providing contextual insight into the motivational processes underlying MPA.

Conclusions: Integrating quantitative and qualitative data is expected to contribute to a developmental and contextual understanding of motivational processes associated with MPA. The findings are also expected to broaden the discussion on how educational practices can reduce maladaptive performance pressures and support students' well-being.

3. Why Some Young Musicians Aim Higher: How Psychological Need Satisfaction and Cultural Participation Shape Higher Music Education Goals

Šabić, J., Puzić, S. and Petrović, D.

Background: Many students enrol in elementary music schools in Croatia, yet far fewer complete these programmes and continue to upper secondary or higher music education (Ministry of Science and Education, 2023). Research has often applied self-determination theory (Ryan & Deci, 2000) to show the role of psychological need satisfaction (autonomy, competence, relatedness, and the more recently introduced novelty; González-Cutre et al., 2020) in educational aspirations, or cultural reproduction theory (Bourdieu, 1977) to highlight the influence of cultural participation. Studies combining these perspectives and exploring their potential interactions are limited. This study addresses this gap by examining motivational and cultural factors in music students' aspirations for higher music education.

Aims: Grounded in self-determination theory and cultural reproduction theory, the study examines the effects of basic psychological need satisfaction experienced in music schools and engagement in cultural activities on students' aspirations for higher music education. It also explores whether cultural participation moderates the relationship between psychological need satisfaction and educational aspirations.

Method: Students in the final year of elementary music schools (N = 255) and students enrolled in upper secondary music schools (N = 343) completed a questionnaire during class. Measures included

the Basic Psychological Needs in the Classroom Scale adapted to music schools (BPN-CS; Conesa & Dunabeitia, 2021), participation in cultural activities over the past year, and aspirations for higher

music education. Structural equation modelling tested main effects of psychological needs and cultural participation, and potential interaction effects.

Results: Satisfaction of autonomy, competence, and novelty needs emerged as significant positive predictors of aspirations for higher music education in both samples, while satisfaction of the need for relatedness did not show a statistically significant effect. Cultural participation was also a significant predictor of aspirations in both samples. Models including interaction terms did not show improved fit, and none of the interaction effects were significant, indicating that cultural participation does not moderate the effects of psychological need satisfaction on aspirations.

Conclusions: The findings suggest that students who feel self-directed, capable, and stimulated by new experiences in the music school context are more likely to aspire to higher music education. Social relatedness appears to be less influential for long-term aspirations in music education. Engagement in cultural activities independently supports aspirations for advanced musical studies, highlighting the importance of broader cultural involvement. The absence of interaction effects indicates that psychological need satisfaction and cultural participation contribute additively rather than synergistically. Overall, the results emphasize the importance of fostering autonomy, competence, and novelty in music education, alongside encouraging cultural engagement, to support students' aspirations for higher music education.

Main Contribution

This symposium presents three complementary studies of Croatian music school students across adolescence. It advances understanding of music education by linking performance-related emotional experiences, well-being under structural demands, and future educational aspirations. By integrating motivational, resource-based, and sociocultural perspectives, it provides a comprehensive account of psychological functioning in young musicians. Together, the studies demonstrate how motivational quality, personal resources, contextual demands, and cultural engagement shape emotional experiences, well-being, and long-term aspirations in music education.

Keywords

Motivation, Well-Being, Aspirations, Music School Students

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Trio Lorenz Hall, 1st Floor

Symposium 2: The Diversity of Music Therapy Practice and Domains

Špela Loti Knoll, Institute Knoll for Music Therapy and Supervision, Academy of Music, University of Ljubljana, Slovenia
institutknoll@yahoo.com

Background of the symposium

Music therapy is implemented across diverse clinical, educational and social care contexts and encompasses a wide range of client groups, theoretical orientations and methodological approaches (Bonde, 2019; Lindahl Jacobsen et al., 2019). According to the World Federation of Music Therapy (WFMT, 2011), music therapy is defined as the professional use of music and its elements as an intervention in medical, educational and everyday environments aimed at optimizing quality of life and improving multiple dimensions of health and well-being. The diversity of music therapy domains therefore raises important questions regarding methodological adaptation, contextual responsiveness and the clear articulation of shared clinical principles across professional settings.

Aims of the symposium

The symposium aims to:

- present the diversity of music therapy practice across different client groups and institutional contexts;
- examine methodological adaptations in relation to specific developmental, cognitive and psychosocial client profiles;
- identify shared clinical principles emerging from the triadic therapeutic process;
- contribute to a clearer professional articulation of music therapy within interdisciplinary environments.

Contributors

1. Creative Interventions in Group Music Therapy for People with Dementia: A Qualitative Case

Simčič, K.

Background: Dementia impacts cognitive, emotional, behavioural, and social functioning, significantly affecting quality of life (Hansen et al., 2017; Ridder, 2019). Music therapy has been shown to support cognitive and psychosocial well-being in people with dementia (McDermott et al., 2014; Ridder, 2019). Neuroscientific research suggests that creative musical engagement may stimulate widespread neural activation, including changes in the prefrontal cortex associated with identity and autobiographical processing (Tomaino, 2013). While the benefits of music therapy are well documented, less attention has been given to the specific role of creative processes within group music therapy for people with dementia.

Aims: This study explored how and to what extent different creative interventions in group music therapy influence the psychophysical well-being of people with dementia.

Method: A qualitative single-case study design was conducted with four clients (aged 92–95) diagnosed with dementia in a residential care setting. Video recordings and documentation of sessions were analysed to address three research questions: (1) the impact of clinical improvisation,

including improvisation within a familiar song, on initiative, spontaneity, and motor activity; (2) the influence of structured "hello" and "goodbye" songs on memory functions and emotional experience; and (3) the effect of learning a new song on group interaction. Data were examined using thematic analysis (Braun & Clarke, 2006).

Results: Clinical improvisation supported increased spontaneity, initiative, and motor engagement. Rhythmic responses such as tapping, clapping, and instrumental playing became more frequent over time, indicating strengthened engagement. "Hello" and "goodbye" songs provided a predictable structure that stimulated short-term memory and enhanced emotional expression through repetition and shared ritual. Learning a new song strengthened group interaction and encouraged mutual responsiveness. Several spontaneous contributions emerged, indicating preserved creative capacity and autonomy despite cognitive challenges.

Conclusions: The findings suggest that creative interventions in group music therapy not only elicit therapeutic responses but also reinforce and sustain them over time. They provide alternative forms of dialogue beyond verbal communication and support psychosocial needs such as autonomy, belonging, and identity. Despite the small qualitative sample, this study highlights the clinical relevance of structured yet flexible creative approaches and contributes to the evidence base for non-pharmacological interventions in dementia care.

2. Implementation of Music Therapy in Primary Schools

Trček, E.

Background: The implementation of music therapy in the educational context of primary schools has been shown to have a beneficial impact on multiple domains of children's development. In Slovenia, music therapy is currently not subject to any regulatory framework. However, several systems offer potential avenues for the introduction of music therapy.

Aims: Considering the evidence indicating the beneficial effects of music therapy, this presentation proposes a framework for integrating music therapy into the extended curriculum in primary schools. The results demonstrate a clear need to expand the use of music therapy in settings where it has been previously implemented or is currently in use. The objectives of music therapy vary depending on the specific client group and the rationale for its use. They encompass a range of outcomes related to the individual's physical, psychological, socioemotional, and cognitive levels. The analysis of the current state of music therapy practice in this context has identified three primary barriers hindering its broader integration. These are: space, availability of instruments, and the feasibility of employing or funding a music therapist. It would be highly beneficial to incorporate music therapy into the extended curriculum, particularly to support children's mental health and well-being.

Main contributions: The findings of the study indicate that integrating music therapy into an extended programme is a logical step, both for addressing existing deficiencies and for promoting preventive measures. For guidance, an annual preparation has been developed which is the basis for the actual implementation of music therapy and provides a starting point for exploring the effects of implementation. The presentation will offer an example of the integration of music therapy into the extended curriculum, facilitated by the utilization of video documentation.

Implications: It is important to emphasize that the collected data are limited to a narrow field of primary schools covered and therefore cannot be generalized to the broader context of primary schools. Nevertheless, the review can serve as a guide for planning the implementation of music therapy in the primary school system.

3. Music Therapy Approaches in Working with Children with Autism Spectrum Disorder Aged 5 to 12

Kerševan, R.

Background: Children with Autism Spectrum Disorder (ASD) face challenges in communication, social interaction, and sensory processing. Traditional therapeutic approaches often do not provide sufficient opportunities for spontaneous and nonverbal expression; therefore, music therapy represents an important complementary form of support.

Aims: The aim of the study was to identify which music therapy approaches and techniques prove to be most effective in practice when working with children with ASD, how therapists foster communication and social interaction, and what challenges they encounter in the process.

Method: The empirical part is based on a qualitative analysis of five semi-structured interviews conducted with experienced music therapists. After the analysis nine thematic categories were identified, revealing clear cause-and-effect relationships, particularly between the therapeutic environment, therapist competencies, regulation, and the establishment of interaction.

Results: The results indicate that effective music therapy requires a safe, sensory-balanced, and predictable environment, as well as a high level of professional and personal competence on the part of the therapist. Key competencies include empathy, observational skills, flexibility, internal regulation, and professional reflection. In individual therapy, improvisation, sound dialogue, mirroring, and sensory-integration approaches proved to be most effective. In group therapy, structured Orff-based elements, rhythmic games, and clearly defined roles play an important role. The decision regarding the therapy format is based on the child's regulatory capacity and readiness for interaction. Practices identified as ineffective include excessive sensory stimulation, overly directive leadership, and premature inclusion in group settings.

Conclusions: Music therapy for children with ASD is an effective yet highly individualized process grounded in relationship, regulation, and the flexible use of musical elements. In therapy, music functions not only as a means of expression but also as a primary regulatory mechanism that enables the establishment of a relationship and the gradual expansion of communication and social abilities. The study confirms the consistency between theoretical foundations and empirical findings and highlights the importance of professional reflection, adaptation, and the integration of various approaches in clinical practice.

4. Adaptation of Music Therapy Methods Across Client Groups: A Comparative Clinical Framework

Gabrščček, P. and Knoll, Š.L.

Background: Music therapy is an established profession that has developed worldwide as both a clinical practice and a scientifically validated discipline. Qualified music therapists are trained to work with diverse client populations and to adapt assessment procedures, methods, and techniques to specific therapeutic goals. These interventions address emotional, physical, cognitive, and social needs. Accordingly, research in music therapy spans multiple domains, including rehabilitation, motivation, emotional expression, and interdisciplinary collaboration (American Music Therapy Association, n.d.).

Aims: This presentation examines how music therapy methods are adapted to diverse client populations. It offers a comparative analysis across several fields of practice: children with autism spectrum disorder, interdisciplinary educational settings, older adults with dementia, and selected additional populations. Particular attention is given to how therapeutic approaches vary depending

on context, including individual, group, and community-based formats, and how these formats shape clinical application (Knoll & Štule, 2025).

Main contribution: Across all examined domains, the triadic relationship between client, therapist, and music constitutes the central organizing principle of therapeutic work. The presentation analyses how core music therapy methods – clinical improvisation, structured musical forms, vocal interventions, and creative techniques – are tailored to the cognitive, communicative, and psychosocial characteristics of specific client groups (Knoll, Š.L., n.d.; Lindahl Jacobsen et al., 2019). Given ongoing conceptual differences in defining methods and techniques in music therapy, the presentation adopts the terminology proposed by Kenneth Bruscia (2014). Bruscia defines a method as a distinct type of musical experience through which the client engages in therapy, while distinguishing related concepts such as variation, procedure, and technique. A model is understood as a systematic and coherent framework integrating methods, procedures, and techniques grounded in specific theoretical principles.

Implications: By mapping the diversity, interconnections, and contextual adaptations of music therapy methods, this presentation highlights the profession's methodological versatility. Such a comparative reflection contributes to a clearer conceptual understanding, and may support future clinical development, interdisciplinary collaboration, and research advancement within the field.

Main Contribution

This symposium explores the diversity of music therapy practice across multiple domains, focusing on clinical, developmental, educational and contextual variations while identifying shared therapeutic foundations. Music therapy is implemented with heterogeneous client groups, including children with autism spectrum disorder (ASD), persons with dementia and other vulnerable populations within healthcare, social care and educational systems (Bonde, 2019; Lindahl Jacobsen et al., 2019). In work with children with ASD, emphasis is placed on improvisational dialogue, mirroring, rhythmic structuring and affective vocal attunement to support joint attention and communication development (Mössler et al., 2019). In dementia care, structured elements such as greeting and closing songs, creative interventions and guided improvisation contribute to maintaining social interaction, emotional expression and group cohesion (Ridder, 2019). Particular attention is also given to the integration of music therapy into school settings as a supportive and preventive practice for certain client groups within the educational system. The potential of music therapy approaches in primary school environments is examined in relation to emotional development, behavioural regulation, social inclusion and the co-creation of a safe learning environment (Krüger et al., 2023). Across domains, core clinical principles are identified: the establishment of a safe and predictable therapeutic framework, the systematic use of musical parameters (rhythm, tempo, dynamics, timbre), responsiveness to individual sensory and communicative profiles, and the therapist's capacity for affective and musical attunement (Lindahl Jacobsen et al., 2019). The diversity of practice is therefore understood as professionally grounded, context-sensitive adaptation within a coherent conceptual framework of music therapy.

Keywords
Music Therapy Practice, Client Groups, Contextual Adaptation, Diversity of Music Therapy, Educational Integration

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12:30 – 14:15

Presentations of new books

Julij Betetto Hall, 1st Floor

Book presentation 1:
Proceedings of the 3rd International Conference "Psychology and Music – Interdisciplinary Encounters", Zagreb, 23–26 October 2024

Ana Butković [1] & Sanja Kiš Žuvela [2]
[1] University of Zagreb Faculty of Humanities and Social Sciences, [2] University of Zagreb Academy of Music, Zagreb, Croatia

Background

Since its first edition in Belgrade in 2019, the *Psychology and Music – Interdisciplinary Encounters* (PAM-IE) conference series has been accompanied by electronic proceedings. The first volume, edited by Blanka Bogunović and Sanela Nikolić and published in 2020 by the Faculty of Music, University of Arts in Belgrade, covered a broad range of music-related topics (skill development, perception and cognition, performance, education, emotion regulation, aesthetics, and everyday life). The second volume, following the 2022 conference, was edited by Blanka Bogunović, Sanela Nikolić, and Dejana Mutavdžin and published in 2023 by the same institution, expanding thematic diversity and demonstrating the richness of interdisciplinary inquiry.

Aims

This presentation introduces the third edition of the proceedings series, the one following the 3rd *International Conference Psychology and Music – Interdisciplinary Encounters*, held 23–26 October 2024 at the University of Zagreb, Academy of Music and the Faculty of Humanities and Social Sciences. The volume comprises 25 double-anonymously peer-reviewed contributions organized into four thematic areas: Music Perception and Cognition, Music Performance, Music in Everyday Life, and Music and Affect. The proceedings reaffirm PAM-IE's vision as a meeting point where psychology, the musical arts, and related disciplines jointly shape new knowledge, fostering an open and rigorous space for dialogue. This electronic publication was edited by the conference heads, Ana Butković and Sanja Kiš Žuvela, and published in 2026 by the University of Zagreb, Faculty of Humanities and Social Sciences and the Academy of Music.

Short outline of the activity
The proceedings will be presented by their editors.

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Butković, A., & Kiš Žuvela, S. (eds.). (2026). *Proceedings of the 3rd International Conference "Psychology and Music – Interdisciplinary Encounters", Zagreb, 23–26 October 2024*. University of Zagreb, Faculty of Humanities and Social Sciences and Academy of Music.

Book presentation 2:
How to Shine on Stage: Factors of Successful Musical Performance

Katarina Habe
University of Ljubljana, Academy of Music, Ljubljana, Slovenia

Background
Musical success is rarely defined solely by measurable outcomes. For performers, it is more closely associated with internal satisfaction, flow, expressive communication, and a sense of authenticity on stage. Despite high levels of technical competence, many musicians – especially classical performers – struggle to translate their abilities into satisfying stage performances due to perfectionism, performance anxiety, and intense self-criticism. As a result, genuine post-performance satisfaction is rare, even among highly accomplished musicians. Understanding and supporting the psychological foundations of musical performance is therefore essential for achieving excellence and well-being.

Aims
The presented monograph explores what enables musicians to "shine" on stage by integrating psychological theory, empirical findings, and practical experience from music performance contexts. Its primary aim is to identify key psychological factors, both direct and indirect, that influence performance success, with a particular focus on performance anxiety and performance flow. While centred on classical musicians within the Slovenian music-education context, the book also addresses performers from other musical genres and related performance domains. A central goal is to guide musicians toward channelling pre-performance excitement into flow, fostering authenticity, optimal functioning, and long-term personal growth.

Short outline of the activity
The book presentation introduces the structure and core themes of the monograph, covering definitions of musical success, indirect factors (abilities, personality, self-concept, motivation, self-regulation, and social support), and direct physiological, emotional, and mental factors affecting performance. Special emphasis is placed on practical strategies for managing performance stress and enhancing flow, offering an integrative resource for students, educators, and professional performers.

References
Habe, K. (2025). *How to Shine on Stage: Factors of Successful Musical Performance*. University of Ljubljana, Academy of Music, and University of Primorska Press.

Book presentation 3:
Vežbanje bez vežbe

Dragana Filimonović
Zdrave vibracije Studio, Sremska Mitrovica, Serbia

Background
This theoretical and empirical contribution introduces the pedagogical framework established in the book *Vežbanje bez vežbe* [Practising Without Practising] (2012). The work addresses a core challenge in music education and performance pedagogy: optimizing technical and artistic acquisition while minimizing physical fatigue, repetitive strain injuries, and performance anxiety. By shifting the paradigm from mechanical repetition to structured cognitive engagement, this framework explores the intersection of music pedagogy, neuroplasticity, and mental simulation. The methodology presented in the book is grounded in the systematic integration of mental imagery, rhythmic internalization, and focused attention without the physical presence of the instrument. It treats the human mind as the primary rehearsal space, utilizing visualization techniques to map motor pathways, clarify formal structures, and stabilize memory. Rather than replacing physical practice, this method serves as an essential complementary framework.

Aims
The primary objective of this pedagogical approach is to enhance learning efficiency by activating the brain's motor cortex through mental rehearsal, effectively accelerating the automation of complex skills. It aims to reduce the physical practice hours required to master repertoire, increase memorization speed, reduce performance-related anxiety, and prevent professional musculoskeletal disorders. The contribution also aims to challenge the traditional "brute-force" approach of endless physical repetition in music schools by introducing contemporary, brain-based learning strategies that prioritize cognitive efficiency. By teaching learners how to internalize information mentally, it fosters a higher level of metacognition and makes students more adaptable to new educational content.

Short outline of the activity
The contribution will present qualitative techniques that allow students and performers to process complex musical layouts, refine articulation, and achieve cognitive clarity in high-stress performance environments. Empirical observations gathered during the implementation of this method demonstrate a significant reduction in physical practice hours required to master repertoire, an increase in memorization speed, and a marked decline in performance-related anxiety among students. While the current foundation of the book relies on qualitative pedagogical case studies and experiential field data, the upcoming phase of this research aims to design a mixed-methods study tracking a specific student cohort to measure cognitive retention, stress levels, and precise time-to-mastery ratios. Ultimately, the book offers a field-tested blueprint for modern educational environments. It demonstrates that mental regulation and cognitive efficiency are vital, non-invasive prerequisites for artistic growth, physical longevity, and deep learning readiness in contemporary music pedagogy. The contribution connects directly with the "Relax Programme". While the workshop focuses on sensory relaxation and stress resilience, the book provides the active cognitive framework for efficient learning, showing a complete ecosystem of modern pedagogical practice.

Reference
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Book presentation 4:
Joga za psihofizično zdravje in blagostanje glasbenikov

Alja Gregorinčič [1] & Ilonka Pucihar [2]
[1] Music School Domžale, Domžale, Slovenija, [2] University of Ljubljana, Academy of Music, Ljubljana, Slovenia

Background
In recent years, awareness of the physical and mental health challenges faced by musicians due to their demanding training and performance schedules has grown. Long hours of practice, repetitive movements and asymmetrical postures can lead to musculoskeletal issues, tension and performance anxiety, which impact their overall well-being and career longevity. Yoga, a holistic mind-body practice integrating physical postures (asanas), breathing techniques (pranayama) and meditation, has gained recognition as a supportive intervention for musicians. It enhances body awareness, improves posture, reduces stress and promotes mental clarity and overall well-being. Its accessibility and preventive nature make it a valuable support to the health routines of musicians, in both educational and performance settings.

Aims
This parallel session aims to present and demonstrate selected yoga-based techniques adapted for musicians. The focus is on injury prevention, body awareness, stress reduction and preparation for practice and performance. The session is based on the manual *Joga za psihofizično zdravje in blagostanje glasbenikov* [Yoga for Musicians' Psychophysical Health and Well-Being], written by Alja Gregorinčič and Ilonka Pucihar and developed as a practical resource for music students and professional performers.

Short outline of the activity
The presentation is going to provide an overview of selected topics from the manual, including the role of asanas, meditation and pranayama in supporting musicians, and ways of incorporating yoga into daily routines. This is going to be followed by a brief guided segment in which selected exercises will be demonstrated to offer participants concrete, experience-based tools for achieving psychophysical balance, focus, and overall well-being.

Reference
Gregorinčič, A. & Pucihar, I. (2024). *Joga za psihofizično zdravje in blagostanje glasbenikov*. University of Ljubljana, Academy of Music.

Book presentation 5:
Glasba zdravi

Lia Katarina Kompan Erzar, [1] Petra Brdnik Juhart [2]
[1] Faculty of Theology, University of Ljubljana, Ljubljana, Slovenia, [2] Faculty of Education, University of Ljubljana, Ljubljana, Slovenia

Background
Music-based interventions are increasingly used in paediatric healthcare to reduce distress and support recovery, yet they are often unevenly implemented and conceptually blurred (e.g. "music medicine" vs "music therapy"). The scientific monograph *Glasba zdravi: vloga glasbe v pediatričnem okolju* [Music Heals: The Role of Music in Paediatric Settings] (2025) offers an interdisciplinary,

research-informed account of how music functions as a therapeutic, psychosocial, and relational resource in clinical paediatric contexts in Slovenia and beyond.

Aims
This book presentation introduces the monograph's conceptual framework, key findings, and practice-oriented recommendations for integrating music interventions into paediatric care.

Short outline of the activity
The talk maps the book's three-part structure: (1) historical and theoretical foundations (music as healing; the therapeutic potential of sound); (2) a synthesis of international evidence and models of music-based interventions in paediatrics (including distinctions between therapist-delivered, relationship-based music therapy and recorded-music approaches); and (3) applied studies from hospital and primary-care settings, with attention to experiences and perspectives of children, parents, students, and healthcare staff. The presentation highlights reported outcomes (e.g. reduced anxiety, stress, and pain; support for emotional regulation and communication) and discusses

implementation questions: professional competencies, interprofessional collaboration, ethical considerations, and conditions that enable sustainable programmes in paediatric wards. The session concludes with an invitation for dialogue on how music research, clinical practice, and music education can jointly strengthen child- and family-centred care.

References
Habe, K., Kompan Erzar, K., & Brdnik Juhart, P. (eds.). (2025). *Glasba zdravi: vloga glasbe v pediatričnem okolju*. University of Ljubljana, Academy of Music, University of Primorska Press; University of Primorska Repository. https://doi.org/10.26493/978-961-293-544-3

15:45 – 17.15
Symposium session 2

Primož Kuret Hall, Ground Floor
Symposium 3: Music Education and Positive Outcomes in Adulthood

Ana Butković
Faculty of Humanities and Social Sciences, Zagreb, Croatia

Background of the symposium
A recent literature review has shown that music can have beneficial influences for both non-musicians and musicians in adulthood, and has also indicated that more studies are needed to better understand the role of music and music education for well-being of adults (Pogačnik, 2021). Kang and Yoo (2019) also point out that there is little extant research on the well-being of musicians (including music teachers and students) in music education.

Aims of the symposium
The aim of the symposium is to present research done within Croatian music education system examining associations between participation in music education and positive outcomes in adulthood.

Contributors

1. Initial Motivation and Work Engagement in Music Teachers: The Mediating Roles of Self-Efficacy and Absorption into Teaching

Marušić, I., & Šabić, J.

Background: Research on teacher motivation highlights the importance of motivational characteristics in shaping teaching approaches, educational quality, and student outcomes such as achievement and engagement (Lauermann, 2017). Initial motivation for teaching is often conceptualized using the FIT-Choice model (Watt & Richardson, 2007), which proposes that individuals consider intrinsic motivation, personal and social utility values, and perceived teaching abilities when choosing a career. Self-efficacy is also a key correlate of teacher well-being, including job satisfaction, commitment, and personal accomplishment (Zee & Koomen, 2016). Evidence further shows that the experience of flow in daily work contribute to teaching quality and life satisfaction (Shoshani, 2025). While research indicates that motivational characteristics are related to teacher well-being in general education, evidence in music education remains limited.

Aims: The aim of this study was to examine the role of initial teacher motivation, self-efficacy, and absorption in the work engagement of music teachers. Specifically, we explored the potential mediating effects of self-efficacy and absorption into teaching.

Method: Scales assessing motivation for teaching, teacher self-efficacy, and absorption were administered to a sample of 289 teachers from primary and secondary music schools in Croatia. Initial motivation for teaching profession was assessed retrospectively with short version of the Factors Influencing Teaching Choice - FIT Choice scale (Richardson & Watt, 2006). Absorption was assessed with Absorption subscale of the Work-Related Flow Inventory (WOLF) (Bakker, 2008), while self-efficacy was assessed with Music Teacher Self-Efficacy subscale from The Music Teacher Identity Scale (Wagoner, 2015).

Results: A mediation analysis was conducted with work engagement as the criterion variable, personal and social utility values of teaching as predictors, and self-efficacy and absorption into teaching as mediators. The results indicate that both personal and social utility values significantly predicted teaching self-efficacy, whereas absorption was predicted only by social utility value. All four variables significantly predicted work engagement. Personal utility value had a significant direct effect on work engagement, as well as an indirect effect through self-efficacy. Social utility value showed a significant direct effect on work engagement and two significant indirect effects through both mediators: self-efficacy and absorption.

Conclusions: Motivation for choosing music teaching as a profession is related to teachers' engagement both directly and through self-efficacy and absorption into teaching. Teachers who choose music teaching because they are intrinsically motivated and feel they can make a social contribution perceive themselves as more efficacious in their teaching and, in turn, report higher work engagement. In addition, those who are intrinsically motivated also tend to be more absorbed in their teaching and, subsequently, more engaged in their work.

2. When Musician and Teacher Identities Meet: Motivational Processes in Music Teachers' Professional Persistence

Petrović, D.

Background: Teacher shortages constitute a global challenge in education, with comparable attrition rates reported among music teachers. A key contributing factor is teachers leaving the profession, highlighting the importance of occupational well-being and motivation for long-term

persistence. According to Job Demands–Resources theory (JD-R; Bakker et al., 2023), occupational well-being emerges from the interplay of job and personal demands and resources. Within this framework, personal resources are particularly relevant for motivational processes. This study focuses on two identity-related personal resources central to music teachers' dual professional identity: musical calling, reflecting the musician dimension, and teacher self-efficacy, representing the educator dimension. These are examined in relation to persistence in the profession through the flourishing aspect of occupational well-being (i.e. work engagement).

Aims: Focusing on the motivational processes underlying music teachers' persistence, this study investigates the mediating role of work engagement in the relationship between music teachers' professional identity (musical calling and teacher self-efficacy) and planned persistence in the teaching profession.

Method: The participants were 293 music teachers (69.1% female) who completed an online questionnaire. Teacher self-efficacy was measured using the Music Teacher Self-Efficacy subscale of the Music Teacher Identity Scale (Wagoner, 2015). Musical calling was assessed with the Musical Calling subscale of the Musical Identity Measure (Burland et al., 2022). Work engagement was measured using the Engaged Teacher Scale (Klassen et al., 2013). Planned persistence in the profession was assessed with a single item ("How sure are you that you will stay in the teaching profession?"). Path analyses were conducted using Mplus.

Results: Work engagement fully mediated the relationships between both musical calling and teacher self-efficacy and planned persistence in the profession. Higher levels of musical calling and self-efficacy were associated with greater work engagement, which in turn predicted stronger intentions to remain in the profession.

Conclusions: Consistent with JD-R theory, music teachers' persistence in the profession appears to operate primarily through work engagement rather than directly through personal resources. This study contributes to the limited empirical literature on music teachers by demonstrating that both music-related (musical calling) and teaching-related (self-efficacy) identity resources support persistence indirectly via engagement. The findings address a key gap in the literature concerning how music teachers' dual professional identity shapes the motivational processes relevant to retention.

3. The Role of Music Education During Lifetime for the Well-Being of Older Adults

Sudar, D., Žauhar, V. & Butković, A.

Background: Music education has a significant role for the well-being of older adults. Music education greatly affects emotional, mental, and physical health, and thus it can help older adults to face challenges such as ageing (Pogačnik, 2021). Participation in various musical activities strengthens self-esteem and promotes a positive view of life in the context of well-being (Dingle et al., 2021), and can reduce the risk of anxiety, depression, dementia and loneliness (Hallam & Creech, 2016). However, less is known about the associations of music education during lifetime – i.e. participating in any form of music education at any point in life – and well-being in older adults.

Aims: The aim of this study is to examine the role of music education during lifetime for well-being of older adults.

Method: Data will be collected in a sample of older adults, citizens of the Republic of Croatia (current N = 35). Participants filled in WHOQOL-BREF (THE WHOQOL GROUP, 1998) and PERMA Profiler (Butler & Kern, 2016) to measure different aspects of well-being, and answer questions about their

highest finished level of music education, whether they have taken part in music activities during their lives, and their current participation in music activities.

Results: Currently, 31% of participants have finished some music education and taken part in music activities during their lifetime. During the last year all the participants listened to music, 89% went to concerts, 14% played an instrument, 23% sang in a choir, and 9% sang alone. Planned analyses include comparing the well-being results for participants who finished music education, currently take part in music activities and did so earlier in their lives, with those who do and did not.

Conclusions: The results of this study will contribute to this research area in number of ways. First, we will examine if the pattern of positive associations between music activities and well-being in the Croatian sample is comparable to other samples. Second, we will examine the underexplored associations between music education during lifetime with different aspects of well-being in older adulthood. Finally, the results of this study will be informative for policy-makers in the context of improving the of well-being in older adults.

Main Contribution

The main contribution of the symposium is the presentation of novel research within Croatian music education about the associations between different forms of participation in music education and positive outcomes in adulthood. Music education within the Croatian music education system consists of six years of primary music school, four years of secondary music school and five years of higher music education to become a professional musician. Although previous studies indicate that music activities and participation in music education are associated with positive outcomes in adulthood, there are still a lot of unknowns in this research area. Therefore, this symposium will offer new insights into how participation in the Croatian music education system is associated with positive outcomes in adulthood. The specific contribution of the symposium is related to the populations examined in those studies, namely music teachers and older adults. Both these groups are of special interest, as more is known about teachers in general education than music teachers, and as the global population is getting older and the percentage of older adults is growing in many countries. The results of the studies presented within the symposium both shed new light on the significance of music education, and raise new questions for future studies.

Keywords
Music Education, Well-Being, Adulthood

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Julij Betetto Hall, 1st Floor

Symposium 4: Music as a Facilitator of Sustainability

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Background of the symposium

Sustainability transitions, as framed by the United Nations 2030 Agenda and its Sustainable Development Goals (SDGs), require not only technological and institutional changes but also cultural, relational, and inner transformation. Increasingly, sustainability research highlights the importance of values, well-being, participation, and social connectedness as foundations for resilient and inclusive societies. Within this context, music – as an artistic, educational, therapeutic, and social practice – has emerged as a significant resource for fostering ecological awareness, cultural continuity, emotional well-being, social inclusion, and community resilience (Barrett & Westerlund, 2023; Schippers & Grant, 2016). Evidence from music therapy and music-based interventions further demonstrates music's capacity to support psychological well-being, solidarity, and long-term coping capacities across diverse populations (Aalbers et al., 2017; Lassner et al., 2024). Rather than addressing isolated sustainability goals, this symposium approaches sustainability as an interconnected process linking inner human development with broader social, cultural, ecological, and institutional transformation. Across different contexts, the contributing papers examine how music can cultivate relational capacities such as empathy, belonging, participation, creativity, and resilience, while simultaneously supporting sustainable cultural and institutional practices aligned with the SDGs.

Aims of the symposium

The symposium aims to develop a coherent interdisciplinary framework, positioning music as a facilitator of sustainability across individual, social, cultural, ecological, and institutional dimensions. It brings together empirical research, theoretical reflection, and artistic practice from music education, music therapy, youth interventions, composition, and participatory artistic workshops. By integrating these perspectives, the symposium seeks to demonstrate how music can connect inner dimensions of sustainability – such as well-being, identity, emotional resilience, and relational awareness – with broader societal sustainability goals, including inclusion, cultural continuity, community resilience, and sustainable institutional development.

Contributors

1. Evaluating Music Interventions for Adolescents: A Well-Being–Social Sustainability Toolkit

Kompan Erzar, K.L. & Kobal Grum, D.

Background: Adolescents' well-being is increasingly understood not only as an individual developmental outcome but also as a foundation for social sustainability, supporting belonging, participation, inclusion, solidarity, and psychological resilience. Evidence suggests that music engagement – from listening to active music-making – can positively influence young people's well-being. However, current research remains limited by inconsistent definitions of well-being and by a lack of context-sensitive quantitative tools for evaluating diverse music learning and intervention settings. This study integrates three conceptual perspectives: Ferre Laevers' experiential conception of well-being, emphasizing feeling at ease, vitality, spontaneity, self-confidence, and low emotional tension; a social sustainability framework focusing on connectedness, inclusion, participation, mutual support, and resilience; and a structured typology of music interventions, including receptive engagement (music listening), participatory engagement (group music-making and singing), and creative engagement (composition and production). Musical identity is considered as a potential moderator of intervention effects.

Aims: This paper presents the design of a forthcoming study (Kompan Erzar & Kobal Grum) that aims to: (1) develop a theory-grounded methodology and evaluation toolkit for assessing the effects and perceived meaning of music interventions for adolescents; (2) integrate experiential well-being, social sustainability, and music-specific dimensions into a coherent analytical framework; and (3) examine how different forms of music engagement and musical identity influence well-being outcomes.

Method: The participants were 255 sixth-grade elementary music school students (Mage = 14) and 343 secondary music school students (Mage = 16) from Croatia. Self-compassion was measured using the Self-Compassion Scale – Youth Version (Neff et al., 2021). School–private life imbalance was assessed with a scale developed for this study, measuring the extent to which music school obligations interfere with other activities and free time. Life satisfaction was measured with a single-item global indicator (Vala & Costa-Lopes, 2010). Moderation analyses were conducted separately for each sample using Hayes' PROCESS macro (Model 1).

Main outcomes: Following PRISMA guidelines (Page et al., 2021), five databases (Scopus, PubMed, ProQuest, Web of Science, EBSCOhost) were searched on 3 November, 2025, yielding 1,034 references. Eligible studies involved youth aged 10–24 and implemented active MBIs, including music therapy, rhythm-based interventions, community music-making, and classroom music programmes. Methodological quality was assessed using the Mixed-Methods Appraisal Tool (MMAT). Findings were synthesized narratively. The study follows an instrument-development and validation design. Initial phases include theoretical mapping, item generation, expert validation, and adolescent co-design

workshops. Subsequent phases involve cognitive interviewing, pilot testing, and psychometric evaluation, including analyses of factor structure, internal consistency, convergent validity, and sensitivity to differences across intervention types and musical identity profiles. The expected outcome is a scalable, empirically grounded evaluation toolkit suitable for research and practice contexts, such as schools, community music settings, and youth programmes. By aligning experiential well-being with social sustainability and music-specific variables, the project advances a more coherent framework for evaluating music interventions in adolescence.

Applications: The proposed toolkit may support evidence-informed decisions about which music interventions are most effective, for whom, and in which contexts. Applications include use in schools, community music initiatives, youth well-being programmes, and interdisciplinary research

settings. More broadly, the study contributes to understanding how music can strengthen adolescent well-being and foster the relational capacities necessary for sustainable, resilient communities.

Conclusions: Active music-based interventions provide participatory, youth-centred pathways that enhance social inclusion and socio-emotional development, while contributing to individual well-being and broader social sustainability. These findings also position MBIs as accessible and context-sensitive strategies for fostering resilience, belonging, and community integration among vulnerable youth.

2. Music Therapy and Sustainability – Systematic Review Following PRISMA Guidelines, Synthesizing Clinical and Sustainability Perspectives

Knoll, Š.L.

Background: Music therapy is increasingly recognized as an effective, evidence-based intervention supporting psychological and emotional well-being across diverse populations. Studies demonstrate significant benefits for individuals with dementia, depression, and those in palliative care (Aalbers et al., 2017; Brungardt et al., 2024; Lassner et al., 2024; Lin et al., 2023). Interventions contribute to reductions in anxiety and depression, improved quality of life, and strengthened emotional resilience. Beyond symptom management, music therapy promotes holistic health and long-term coping capacities. Sustainability has become a central concern in healthcare systems, encompassing ecological responsibility, institutional continuity, and social inclusion. Integrating music therapy sustainably requires structured education, professional training, and advocacy. Community-based music initiatives further enhance social cohesion and collective well-being (Barrett & Bond, 2015). The adoption of digital and hybrid approaches, including telehealth and technology-supported interventions, expands access while aligning with sustainable healthcare goals (Brungardt et al., 2024).

Aims: This paper follows PRISMA guidelines and aims to: (1) synthesize current evidence on the therapeutic effectiveness of music therapy; (2) conceptualize sustainability in music therapy from clinical and social perspectives; and (3) propose an integrative framework linking clinical outcomes with long-term healthcare resilience.

Main contribution: The paper positions music therapy as both a therapeutic intervention and a sustainable healthcare practice. By connecting empirical clinical findings with sustainability principles, it highlights how music therapy can strengthen institutional capacity, support workforce development, and foster community participation. Innovation – particularly digital delivery formats – offers a pathway to broader accessibility and long-term system viability.

Implications: Implications include policy integration of music therapy within healthcare systems, development of sustainable training and certification pathways, expansion of community-based

programmes, and implementation of technology-enhanced services. Collectively, these applications support interdisciplinary collaboration and align music therapy with global sustainability agendas.

3. Music-Based Interventions as Pathways to Social Inclusion, Well-Being, and Social Sustainability Among Vulnerable Adolescents and Young Adults

Blagojević, J. & Habe, K.

Background: Adolescents and young adults face increasing risks of social exclusion due to socioeconomic inequalities, forced migration, and rising mental health challenges (World Health Organization, 2024). This developmental period is critical for identity formation, socio-emotional development, and social integration (Arnett, 2013). Music-based interventions (MBIs) have emerged across therapeutic, educational, and community contexts as participatory approaches that may foster social inclusion, well-being, and broader social sustainability among vulnerable youth (Spence & Bartleet, 2025; Welch et al., 2014). However, empirical evidence remains fragmented across disciplines and populations.

Aims: This study aimed to systematically synthesize empirical research examining the potential of active MBIs to promote social inclusion, socio-emotional development, and well-being among adolescents and young adults (aged 10–24).

Methods: Following PRISMA guidelines (Page et al., 2021), five databases (Scopus, PubMed, ProQuest, Web of Science, EBSCOhost) were searched on 3 November, 2025, initially resulting in 1,034 references. Eligible studies involved youth aged 10-24 and implemented active MBIs, including music therapy, rhythm-based interventions, community music-making, and classroom music programmes. Methodological quality was assessed using the Mixed-Methods Appraisal Tool (MMAT). The findings were synthesized narratively.

Results: Seventeen peer-reviewed studies met the inclusion criteria (N = 932). Interventions included music therapy (N = 5), rhythm-based interventions (N = 5), community music-making (N = 4), and classroom music interventions (N = 3), conducted across North America, Europe, Asia, and Oceania. Participants comprised socially at-risk neurotypical youth (N = 917) and youth with developmental challenges (N = 15). Across diverse contexts and methodologies, participation in MBIs was associated with improvements in social (group cohesion, communication skills, peer interaction, inclusion), emotional (self-regulation, emotional expression, empathy), and psychological (resilience, identity development, confidence, positive self-concept) domains. Key mechanisms included collaborative group participation, creative autonomy, reflection dialogue, and the creation of safe, supportive environments.

Conclusions: Active music-based interventions provide participatory, youth-centred pathways that enhance social inclusion and socio-emotional development, while contributing to individual well-being and broader social sustainability. These findings also position MBIs as accessible and context-sensitive strategies for fostering resilience, belonging, and community integration among vulnerable youth.

4. Sustainability in the Works of Slovenian Composers

Ivec, A., Pučko, Š. & Habe, K.

Background: In recent years, sustainability has become increasingly prominent in artistic and academic discourse. While traditionally associated with environmental concerns, the concept has expanded to include social, cultural, and creative dimensions. In music, sustainability raises questions about the long-term relevance of compositional practice, the persistence of musical works,

and composers' relationships with their social and cultural environments. Although sustainability has been explored in music education and climate communication (e.g. Dixon et al., 2024; Soliman, 2012), composers' perspectives remain underrepresented in music-psychological research, particularly in contemporary Slovenian composition.

Theoretical framework: The study draws on interdisciplinary approaches to sustainability in the arts, including cultural sustainability and ecological thinking in music. Sustainability is treated as a broad and open framework rather than a narrowly defined concept. Composers are understood as cultural intermediaries whose creative decisions are shaped by aesthetic values, professional conditions, and wider social contexts. This perspective enables the examination of sustainability as both an explicit theme and an implicit orientation that influences compositional thinking and professional practice.

Aims: The study aims to explore how Slovenian composers understand sustainability and how they relate it to their compositional practice. It examines whether sustainability informs creative thinking and decision-making, and how composers reflect on the long-term cultural and social implications of their work.

Methods: A quantitative survey will be conducted among members of the Society of Slovene Composers (DSS). Participation will be voluntary and anonymous. A structured questionnaire with multiple-choice items (allowing multiple responses and additional input) will address sustainability-related themes, target audiences, performance contexts, ensemble types, and perceived challenges. Data will be analysed using descriptive statistics.

Expected results: The study is expected to provide descriptive insights into how Slovenian composers conceptualize and engage with sustainability, identifying general tendencies and recurring patterns.

Conclusions: The research offers a quantitative overview of sustainability in contemporary Slovenian composition and contributes to broader interdisciplinary debates (e.g. National Centre for Atmospheric Science, 2023). It may also inform future research, music education, and cultural policy discussions.

5. The Inclusion of Vulnerable Groups in Slovenian Cultural Institutions as a Factor in Social Sustainability

Pučko, Š., Kumar, U., Gorič, T. & Habe, K.

Background: In contemporary societies marked by social exclusion and inequality, the inclusion of vulnerable groups in the cultural sphere is essential for promoting sustainable development (McDonald, 2013). Artistic participation extends beyond aesthetic experience, offering opportunities for agency, interaction, and social recognition (Yerichuk & Krar, 2019; Zadnik & Bajs, 2020). Research further emphasizes that accessible and inclusive cultural programmes can reduce social disparities (Belfiore, 2013; Hadley & Thomas, 2018). Nevertheless, vulnerable groups – those at heightened risk of social exclusion and inequality – often experience limited access to cultural participation, highlighting the need to better understand how institutions create inclusive environments.

Aims: This study aimed to examine the inclusion of vulnerable groups in Slovenian cultural and music institutions. Specifically, it investigated which groups are most frequently addressed, how institutions plan and implement inclusive programmes, the accessibility measures they provide, and the challenges and barriers they encounter.

Method: A quantitative research design was employed. Data were collected via an online survey questionnaire completed by 26 representatives of Slovenian cultural and music institutions. The collected data were analysed using descriptive statistical methods.

Results: The findings indicate that the inclusion of vulnerable groups in Slovenian cultural and music institutions is relatively widespread but uneven and largely unsystematic. Institutions most frequently include groups whose needs can be accommodated within existing programmes and through minor adaptations. In contrast, groups requiring specific sensory, communication, or content-related adjustments are less frequently addressed. Key barriers to inclusion include spatial and staffing limitations, unstable funding, and the absence of long-term strategic planning. Inclusion efforts are typically embedded within existing programmes rather than developed through structured, comprehensive frameworks.

Conclusions: The results suggest that current inclusion practices are institution-specific and lack systemic coordination, limiting responsiveness to the diverse needs of vulnerable groups. To foster more sustainable and effective models of social inclusion in the cultural sphere, it is essential to promote direct collaboration between cultural and music institutions and vulnerable individuals. Such cooperation would support the identification of specific needs and the development of structured, long-term inclusive strategies.

Main Contribution

This interdisciplinary symposium positions music as a catalyst for sustainable transformation by integrating perspectives from music education, music therapy, youth well-being research, contemporary composition, and artistic practice within a shared sustainability framework connected to the SDGs. The symposium includes systematic reviews on music education and music therapy, research on music-based interventions for vulnerable adolescents, a study of sustainability in contemporary Slovenian composition, and an artistic water workshop inspired by Tan Dun. Together, these contributions demonstrate how music facilitates sustainability not only through external societal and cultural change but also through the cultivation of inner capacities that support human flourishing and collective resilience. Across educational, therapeutic, artistic, and community contexts, music is presented as a practice that strengthens well-being, inclusion, participation, cultural continuity, ecological awareness, and institutional adaptability. By connecting empirical evidence with artistic experimentation and participatory practice, the symposium advances a multidimensional and practically applicable understanding of musical sustainability facilitation. The integrated framework proposed across the presentations highlights how music can contribute to more sustainable and resilient communities by linking personal well-being and relational development with broader cultural and societal sustainability goals.

Keywords
Music, Sustainability, Sustainable Development Goals (SDG), Vulnerable Groups, Inclusion

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Trio Lorenz Hall, 1st Floor

Symposium 5: Bridging Music, Autism, and Neurodiversity-Affirming Research

Kaja Korošec
Royal College of Music in Stockholm, Stockholm, Sweden; Karolinska Institute, Stockholm, Sweden

Background of the symposium

Research on autism and music is increasingly shifting away from deficit-based models toward frameworks that prioritize the lived experiences of autistic individuals (Heaton, 2024). Despite growing recognition of music's emotional, social, and communicative significance in autistic lives, the field remains methodologically limited and theoretically fragmented, with insufficient attention to autistic perspectives and real-world contexts.

Aims of the symposium

The aim of this symposium is to illustrate how music can enhance understanding of neurodiversity. The symposium brings together five presentations to illustrate how music can enhance understanding of neurodiversity, particularly in relation to emotional, social, and communicative experiences – from structured school-based interventions with autistic adolescents to the everyday listening practices of autistic adults. It examines current research methods and their limitations, advocating for more embodied, participatory, and ecologically valid approaches, including arts-based methods, micro-phenomenological interviewing, and biometric measures. It also highlights the value of interdisciplinary and strengths-based practices that centre autistic perspectives, while acknowledging challenges such as sensory overwhelm and exclusionary environments.

Contributors

1. The Musical Bridge: A Music-Based Activity to Facilitate Emotion Recognition and Understanding for Autistic Adolescents

Redondo Pedregal, C. & Heaton, E. P.

Background: Recognizing emotions in others is crucial for developing and maintaining relationships (Denham, 2019). Autistic children and adolescents usually show differences in social communication when interacting with nonautistic people, which complicates the development of social relationships. Research has found music to be a powerful tool to convey emotions, modulate mood, and promote social engagement and many autistic people are drawn to music and engage with music daily (Heaton, 2025; Kirby & Burland, 2022; Korošec et al., 2025; Venter et al., 2023).

Aims: This intervention capitalizes on music's potential to provide embodied emotional experiences and encourages participants to reflect on and verbally label these experiences. This study explores its effectiveness in a sample of autistic adolescents.

Methods: 62 autistic adolescents (21 female) took part in this study. This study consisted of pre- and post-intervention testing phases and five consecutive music sessions. Measures of verbal and nonverbal abilities, alexithymia, social communication, and autism characteristics were taken before the intervention, and behavioural measures of ER in five modalities were taken before and after the intervention. During the music sessions, music excerpts depicting five simple emotions (i.e. happiness, sadness, anger, fear, and surprise) were shown to trigger a discussion about how people portray emotions and discuss past experiences about these emotions.

Results: The findings showed significant improvements post-intervention across four modalities of emotion stimuli (i.e. static faces, dynamic faces, verbal voices, and nonverbal voices), while improvements in gestures were less robust. Regression analyses indicated that participants with lower verbal abilities and higher levels of autistic traits benefited most from the intervention, highlighting its inclusivity across diverse verbal profiles. In contrast, alexithymia scores did not change significantly, consistent with the stability of this trait and the limitations of self-report measures.

Conclusions: While the short-term nature of the intervention may have constrained broader effects on alexithymia, the results underscore the potential of music to facilitate ER and provide an accessible, cost-effective approach to supporting emotional learning. Limitations and future directions are discussed.

2. Experience Matters? Psychological Readiness of Teachers for Inclusive Music Teaching and the Role of Experience in Teaching Students with Autism

Sevšek, K.

Background: Music education in primary school holds a distinctive role due to its expressive and largely non-verbal nature, which enables unique opportunities for learning and communication. Consequently, it is frequently regarded as a subject with considerable inclusive potential. However, music lessons can be psychologically demanding when a student with ASD is present in the classroom, because teachers must continuously regulate classroom dynamics, anticipate sensory and behavioural triggers, and support participation through structure and communication. In this context, teachers' self-assessed competence is a key psychological indicator of perceived preparedness and professional self-efficacy.

Aims: The study focused on (1) teachers' self-assessed competence to recognize ASD characteristics, (2) teachers' self-assessed competence to teach music to students with ASD, and whether self-assessments differ between teachers with and without direct experience teaching a student with ASD. Another aim was to explore teachers' expressed need for further professional training.

Methods: The study was based on a questionnaire administered online to Slovenian primary school teachers who teach music. Teachers rated their perceived competence for (a) recognizing ASD characteristics and (b) teaching music to students with ASD on five-point Likert scales. Group differences were tested between teachers with and without ASD teaching experience using independent samples t-tests. The need for additional training was assessed with categorical responses and compared across experience groups using x^2 tests.

Results: Teachers' self-assessments indicated generally limited perceived competence. With regard to recognizing ASD characteristics, most respondents placed themselves below the "competent" level; teachers with ASD teaching experience reported significantly higher competence than those without. A similar pattern emerged for competence to teach music to students with ASD: teachers without experience predominantly described themselves as (fully) unprepared, whereas more experienced teachers more often reported partial or full competence, with a statistically significant difference between groups. Despite these experience-related differences, the overall profile suggests that perceived competence remains modest even among experienced teachers. Most teachers expressed a desire for additional professional training, and this need did not differ significantly by prior experience, indicating a broadly shared perception of insufficient readiness.

Conclusions: Teachers' self-assessments indicate generally low-to-moderate perceived competence for inclusive music teaching with students with ASD, with direct experience associated with higher perceived preparedness. This pattern suggests that experiential learning strengthens teacher self-efficacy, yet does not fully compensate for limited formal preparation. These findings highlight the need for systematic, practice-oriented training that integrates ASD-related knowledge with concrete music classroom strategies.

3. Building a Unified Framework: Synthesizing the Lived Musical Experiences of Autistic Adults

Korošec, K.

Background: Historically, research on music and autism has focused predominantly on paediatric populations and interventions designed to "treat symptoms" by modifying observable behaviour. Recently, however, the field has pivoted away from a deficit-based model toward neurodiversity-affirming paradigms that prioritize the lived experiences of autistic individuals (Korošec et al., 2022). While a few studies now investigate how autistic adults subjectively experience musical engagement, these interview studies remain exploratory and based on small samples (Venter et al., 2023). Consequently, the area lacks a unified theoretical framework, hindering cross-study comparison and synthesis (Korošec et al., 2025).

Aims: This review synthesizes current literature to identify and evaluate the shared thematic patterns in how autistic adults perceive, engage with, and derive meaning from musical experiences.

Main contribution: The review provides a critical synthesis of the current evidence regarding the subjective perspectives of autistic adults. More specifically, it identifies a "red thread" that connects previously isolated exploratory studies, highlighting how music is used to regulate emotions and attention, support personal development, socialise, and feel connected to other people. Crucially, the review also accounts for the negative dimensions of music engagement, such as sensory overwhelm or exclusionary environments.

Implications: This review provides a unified language, allowing researchers to compare findings between previously disconnected exploratory studies on how autistic adults experience music. It offers a working framework to move the field to its next stage: transitioning from disparate findings based on small interview studies to larger quantitative research that tests the generalizability of our current insights.

Main Contribution

This symposium offers an integrative theoretical and methodological contribution to music and neurodiversity research. It synthesizes dispersed empirical findings – including gaps in teacher preparation for inclusive music education – into a more coherent body of knowledge, broadens the field's methodological toolkit, and connects research to educational practice. Throughout, autistic

voices are treated as epistemically central, reflecting a commitment to both scientific rigour and ethical responsibility.

Keywords
Autism, Methodology, Music, Neurodiversity, Social Justice

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17:30 – 19:00

Round Table: RNPaM as a Road to Sustainable Regional Networking

Julij Betetto Hall, 1st Floor

Chair:
Blanka Bogunović, Faculty of Music, University of Arts, Belgrade, Serbia

Background and Aims

The idea of Regional Network Psychology and Music (RNPaM) originated during the first international conference *Psychology and Music – Interdisciplinary Encounters*, held in 2019, in Belgrade. The main reason for establishing RNPaM was to connect colleagues from academic institutions, researchers, and practitioners in the interdisciplinary field of psychology and music across the Western Balkans and beyond. The aims of RNPaM are to support, encourage, and enhance the development of the psychology of music as an academic and applied discipline in regional centres, and to open opportunities for collaboration among colleagues with interdisciplinary orientations and interests from related social sciences and humanities. At the same time, the broader-interested public is invited to follow developments in the further progress of the RNPaM and new research and activities in music psychology. The aim of organizing the RNPaM round table at the PAM-IE 2026 Ljubljana is to present the network's activities over the last two years, following the PAM-IE 2024 Zagreb conference. Further, to hear more about the academic, research, and applied development of the psychology of music in each regional centre. The RNPaM round able will enable the sharing of news with a broader international community, attract new members ready to collaborate, and promote joint activities in the region related to research projects, publications, and conferences.

Participants

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Thomas Lennie
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Friday, October 16, 2026

Academy of Music, University of Ljubljana, Kongresni trg 1, 1000 Ljubljana

9:00 – 10:00: Keynote speaker Dianna T. Kenny
Theorizing and Managing Music Performance Anxiety: A Symphony of Subtypes
Julij Betetto Hall, 1st Floor

10:00 – 10:30: Coffee with Dianna T. Kenny
Primož Kuret Hall, Ground Floor

10:30 – 11:15: Workshop session 3
Workshop 7: Julij Betetto Hall, 1st Floor
Tadeja Mraz Novak, *Music Activities for Adults with Intellectual and Physical Disabilities: Emotional Regulation in Community Practice*

Workshop 8: Marijan Lipovšek Hall, 1st Floor
Sílvia Mendonça, *Till Silence – Reimagining the Soundscape of Death*

11:15 – 12:45: Parallel oral sessions 1 – 4
Oral session 1: Online presentations (Julij Betetto Hall, 1st Floor)
Oral session 2: Music and Well-Being (Marijan Lipovšek Hall, Ground Floor)
Oral session 3: Processing Music (Trio Lorenz Hall, 1st Floor)
Oral session 4: Music Performance (Primož Kuret Hall, Ground Floor)

12.45 – 13.00: Quick refreshment / movement break

13.00 – 14.00: Poster session
Entrance Hall, Ground Floor

14.00 – 15.30: Lunch break

15.30 – 16.30: Parallel oral sessions 5 – 8
Oral session 5: Music Potential and Development (Breda Oblak Hall, 3rd Floor)
Oral session 6: Music Performance (Marijan Lipovšek Hall, 1st Floor)
Oral session 7: Processing Music (Trio Lorenz Hall, 1st Floor)
Oral session 8: Processing Music (Primož Kuret Hall, Ground Floor)

16.30 – 17.00: Quick refreshment / movement break

17.00 – 18.30: Music Programme: The musical *Annie and Mary*

19.00 – 23.00: Conference dinner

Friday, October 16, 2026

9:00 – 10:00
Keynote speaker Dianna T. Kenny
Julij Betetto Hall, 1st Floor

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Dianna was Professor of Music and Professor of Psychology at The University of Sydney, Australia (2006–2019), Founding Director, Australian Centre for Applied Research in Music Performance (ACARMP) at the Sydney Conservatorium of Music, (2002–2008), and Director of postgraduate research at the National Voice Centre (1999–2002). She was honoured with a Lifetime Achievement Award from SEMPRE at its 50th Anniversary conference in 2022. She is the author of 12 books, including *The Psychology of Music Performance Anxiety* (OUP, 2011), a seminal text in the field, and the Kenny Music Performance Anxiety Inventory (K-MPAI), which has been translated into 25 languages and is the most used instrument internationally in research on music performance anxiety.

Theorizing and Managing Music Performance Anxiety: A Symphony of Subtypes

This paper proposes a hybrid theoretical framework for music performance anxiety which incorporates dimensional and categorical conceptualizations. Five categories or subtypes of music performance anxiety - skill deficit, trait anxious, social-evaluative, somatic dominant, and trauma/shame-based aetiologies - are described. This framework incorporates all existing theories within each category, highlighting their core tenets and contributions to understanding this multifaceted condition. A review of treatment across four distinct domains - cognitive-behavioral, physiological/biofeedback/relaxation/mindfulness, virtual reality and attachment informed/psychodynamic - is presented, concluding with matchmaking causes (subtypes) with treatments. This paper serves as a foundational resource for further investigation and therapeutic development of the theory of music performance anxiety.

10:30 – 11:15

Workshop session 3

Julij Betetto Hall, 1st Floor

Workshop 7: Music Activities for Adults with Intellectual and Physical Disabilities: Emotional Regulation in Community Practice

Tadeja Mraz Novak, University of Ljubljana, Faculty of Education, Slovenian Carl Orff Society (SDCO), Tončke Hočevar Community Care and Work Centre for Adults with Intellectual and Physical Disabilities, Ljubljana, Slovenia
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Background

Adults with intellectual and physical disabilities often experience challenges related to emotional regulation, sensory processing, and sustained social participation. Contemporary neuroscience shows that music engages the distributed neural networks involved in affective processing, reward, stress modulation, and interpersonal synchronization (Koelsch, 2014; Chanda & Levitin, 2013). Rhythmic entrainment and shared musical action are thought to engage the dopaminergic reward systems and endogenous opioid mechanisms associated with pleasure, motivation, and social bonding (Chanda & Levitin, 2013; Levitin, 2024). Embodied perspectives further suggest that coordinated movement and shared pulse foster interpersonal synchrony and co-regulation at behavioural and neurobiological levels (Leman, 2016). Recent research further suggests that music can support emotional regulation through integrated neural, physiological, and social mechanisms, making it a valuable resource in therapeutic and community settings (Koelsch, 2015). The activities presented in this workshop are informed by the principles developed by Orff-Schulwerk, emphasizing elemental music-making, participation, improvisation, and shared musical experience as foundations for emotional regulation and inclusion. This workshop draws on weekly group music sessions conducted in a community centre for adults with intellectual and physical disabilities, focusing on emotional regulation through co-regulatory embodied music-making.

Aims

The workshop aims to:

- Present concrete music activities that support emotional regulation through rhythmic structure and embodied engagement.
- Demonstrate how voice, movement, percussion, and simple melodic instruments facilitate co-regulation in heterogeneous groups.
- Explain how these practices relate to current findings in the neuroscience of music and interpersonal synchrony.
- Provide adaptable frameworks for professionals working in inclusive community settings.

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

The workshop will be fully experiential. Participants will actively engage in selected activities used in weekly practice:

- Establishing a shared pulse through body percussion and grounded rhythmic entrainment to stabilise attention and arousal.
- Pentatonic group singing to enable safe improvisation and reduce performance anxiety.
- Layered instrumental patterns allowing differentiated participation and shared rhythmic containment.
- Movement-based musical cycles progressing from activation toward structured calming closure.

The activities follow a regulatory arc: grounding → synchronization → creative expansion → integrative settling. Short reflective pauses will connect embodied experience with mechanisms of affect regulation, neural entrainment, and social synchrony.

Implications for practice
The presented model illustrates how structured yet flexible musical frameworks can function as co-regulatory environments. Predictable pulse and repetition provide physiological stability, while improvisational space supports agency, participation, and self-expression. Structured, co-regulatory embodied music-making provides predictable sensory, rhythmic, and interpersonal experiences that facilitate emotional regulation while supporting participation across diverse cognitive, communicative, and motor abilities. The approach does not require advanced musical skills and is adaptable to varying cognitive, communicative, and motor abilities. It offers practical tools for inclusive music education, arts-based support practices, and community care contexts.

Specific value of the workshop for the conference
This workshop integrates hands-on musical practice with contemporary neuroscience and music psychology. By engaging participants directly in embodied music-making, it demonstrates how emotional regulation emerges through rhythmic entrainment, shared attention, and structured improvisation. The format enables attendees to both experience and critically reflect on music's potential as a co-regulatory resource in community-based work with adults with intellectual and physical disabilities.

Keywords
Community Music, Emotional Regulation, Embodied Music, Inclusive Music Practice, Intellectual Disabilities

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Marijan Lipovšek Hall, 1st Floor

Workshop 8: Till Silence – Reimagining the Soundscape of Death

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Background
The notion that death is a social construct invites us to reconsider how societies engage with the end of life. Far from being a fixed biological event, death is understood through cultural lenses that shape its meaning and emotional resonance. In this context, sound emerges as a powerful tool – not only to reshape and harmonize individual and collective memories and ideas, but also to humanize the experience of death itself. Through soundscapes, music, spoken word, and ritualistic

auditory practices, death can be woven back into the fabric of time and life, creating spaces for reflection, meditation, mourning, and celebration. Death is an inevitable aspect of human existence, yet it remains one of the most profound and often avoided subjects in cultural discourse.

Aims

This workshop proposes the collective creation of soundscapes based on small cues, which can serve to create a sonic environment based on human finitude, the passage of time, and death. Through identifying relevant artistic elements, themes, and practices, we aim to develop new ways of coping with death in this proposal – transforming fear and sadness into meaningful reflection, dialogue, and emotional resilience.

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

During the workshop, participants are invited to collectively create a soundscape through a guided listening process that uses silence as a field of expressive possibilities. It is an invitation that interrupts the usual flow of communication, the production and reception of stimuli, immediate reactions, and an openness to the unexpected. The aim is to create moments of contrast and transition between temporalities/consciousnesses through a performance which uses the body, space, different objects and musical instruments brought by the participants.

Implications for practice

These sonic experiences can soften the harshness often associated with death, facilitating a more compassionate and holistic engagement with the inevitable. By doing so, sound bridges the gap between the abstract idea of death and lived human experience, enriching our understanding and acceptance of life's finite nature. In this context sound can become a medium of transformation – one that harmonizes internal and social imaginaries, revives language around mortality, and ultimately humanizes the encounter with death.

Scientific value of the workshop for the conference

Death is an inevitable aspect of human existence, yet it remains one of the most profound and often avoided subjects in cultural discourse. Exploring the issue of death in contemporary art is about redefining the relationship between life and death, presence and absence. It challenges viewers to engage with mortality not as a distant concept but as an integral part of existence, inviting ongoing dialogue and emotional resonance across diverse cultural frameworks.

Keywords

Sound Perception, Sound Temporality, Sociology of Death, Aesthetic of Death, Consciousness

References

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11:15 – 12:45

Parallel oral sessions 1 – 4

Julij Betetto Hall, 1st Floor

Oral session 1: Online presentations

Chair: Valnea Žauhar

From External Support to Artistic Autonomy: Adolescence in the Development of Organists' Musical Potential

Tjaša Drovenik Adamec, Bojan Kovačič
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Background: The development of musical potential is increasingly recognized as a dynamic, multidimensional process shaped by the interaction between personal dispositions and environmental influences across the lifespan (McPherson & Hallam, 2016). In music education, adolescence is a particularly sensitive developmental stage, as young musicians move beyond externally structured learning and gradually assume greater responsibility for their own artistic growth.

Aims: This paper examines adolescence as a developmental turning point in the formation of organists' musical potential. Drawing on doctoral research involving organists at different developmental stages, it explores how the balance between external support and internal regulation changes over time. Particular attention is given to the shift from the earlier importance of family support, teacher guidance, and educational environment (Creech, 2010) towards the increasing role of self-regulation, intrinsic motivation, psychological resilience, and emerging artistic identity (McPherson & Zimmerman, 2011).

Main contribution: The paper offers a conceptually focused interpretation of adolescence as an intermediate phase in which dependence on external scaffolding is gradually transformed into more autonomous forms of musical engagement, rather than disappearing entirely. From this perspective, adolescent development is not merely a continuation of childhood training, but a qualitatively distinct period characterized by increased self-awareness, changing motivational structures, and heightened sensitivity to evaluation and performance-related pressure (Papageorgi et al., 2007). For organists, this process is shaped by the specific demands of organ performance, repertoire development, and the relationship between artistic individuality and pedagogical tradition. Adolescence thus represents a crucial developmental threshold at which musical potential may be enhanced through appropriate support or constrained by misaligned educational expectations.

Implications: This contribution highlights the importance of understanding adolescent musical development in organists from a lifespan and context-sensitive perspective. The implications are primarily pedagogical: teachers and mentors should recognize adolescence as a phase that requires a gradual shift from instruction and supervision towards autonomy-supportive guidance that fosters self-regulation, confidence, and artistic agency. This approach aligns with research indicating that autonomy-supportive teaching can enhance students' well-being and intrinsic motivation in music learning (Bonneville-Roussy et al., 2020). It may contribute to more sustainable talent development and a deeper understanding of how young organists transform guided learning into mature musical practice.

Keywords: Organists, Adolescence, Musical Potential, Self-Regulation, Music Pedagogy

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The Paradox of Understanding Otherness in the Opera *The Knock*

Tamara Furlan
Faculty of Media and Communications, Belgrade, Serbia

Background: The one-act opera *The Knock* (2020), composed by Aleksandra Vrebalov with a libretto by Deborah Brevoort, draws on real interviews with American military spouses. *The Knock* portrays the anticipatory grief and uncertainty of waiting for the dreaded "knock" at the door during the Battle of Fallujah in the Iraq War (2004).

Aims: In this paper, philosophical hermeneutics illuminates the paradox of understanding otherness as selfhood (Ricœur, Levinas), while music cognition reveals how specific musical elements facilitate empathetic processing of sacrifice and fear. By problematizing the notion of victimhood, this opera allows listeners to internalize remorse as a form of almost mythological guilt, as well as the self-destructive potential of ideals. The reading of difference between the spheres of the public and the private evokes a Jungian analytical approach to psychoanalysis in order to better understand the nexus *opera – the collective unconscious* archetype in this work of art.

Main contribution: Through a qualitative content analysis of the libretto and key musical-dramatic moments, the study identifies concrete empathy-inducing mechanisms. Remorse is expressed primarily through the high baritone voice of Lieutenant Gonzales, originally performed by Armando Contreras, and through percussion, especially the offstage typewriter sound – a dominant everyday element that correlates with the characters' emotional states and their motivation to "pre-write" memories, functioning as the sound of judgment or an impending sentence. The typewriter, cymbals, and vibraphone create multifaceted motifs of redemption that are both political and personal. The female chorus's singing – "Blue is the colour of waiting / All this waiting makes us blue / Feeling the weight of waiting" – evokes the colour blue as an acoustic metaphor for inaction and hope, while the cry "It's Going to Be a Long Night!" (Blue Moon), sung from the courtyard, generates a meta-chamber atmosphere offering fragile, yet powerful hope. Contrasts such as Gonzales's lines "Road is clear / In two hours I'll be there", juxtaposed with the collective "What's that knocking sound?", further heighten tension and perspective-taking. These elements activate emotional contagion via vocal timbre and percussive intrusion, embodied simulation through rhythmic tapping, and multimodal integration with the dramatic narrative. The result is a paradoxical, almost metatheatrical empathetic dynamic: music renders radical otherness.

Implications: This interdisciplinary approach demonstrates how specific acoustic mechanisms in contemporary opera process guilt, waiting, and otherness through empathy, enriching music cognition research and offering applications in music therapy as a way to process trauma and heal.

Keywords: Responsibility, *The Knock*, Opera, Hermeneutics, Myth

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Piagetian Conservation in Music Listening: A Developmental Framework for Stylistic Sensitivity

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Background: In Piaget's theory of cognitive development, conservation is a defining feature of concrete operations, referring to the ability to preserve invariant properties through reversible mental transformations despite perceptual changes (Piaget & Inhelder, 1969). Musical conservation denotes the ability to recognize invariant features of musical material when its contextual dimensions change (Zimmerman & Sechrest, 1970). In this sense, conservation in music is understood as the capacity to preserve the identity of a musical pattern despite variations in individual parameters, representing a developmentally conditioned manifestation of operatory musical thinking. Pflederer (1967) further suggests that five conservation-type laws may be identified in the development of musical concepts: identity, metrical groupings, augmentation and diminution, transposition, and inversion.

Aims: The main aim of this study is to provide a theoretical overview of strategies grounded in Piagetian conservation, with particular emphasis on their application in the domain of music listening, specifically in the development of stylistic sensitivity, defined as the ability to recognize whether two musical excerpts originate from the same or from different pieces (Gardner, 1973; Marshall & Hargreaves, 2007). Special attention is devoted to the theoretical extension of Pflederer's model of conservation-type laws through the introduction of new criteria that find concrete application in pedagogical work on musical styles.

Main contribution: The work offers a novel theoretical integration of Piaget's conservation into the domain of music listening. Examples of conservation in music listening may be observed in situations in which students recognize that certain musical patterns remain unchanged despite transformations of other expressive elements. For example, students may notice that tempo remains unchanged despite variations in instrumental ensemble, and timbre, or recognize the same rhythmic pattern despite changes in dynamics, tempo or register. Such tasks require students to redirect their attention toward stable patterns and the relationships within the musical material. In this way, the development of reversible mental operations characteristic of the concrete operational stage becomes evident. In this sense, musical invariants may be understood not only as perceptual phenomena, but also as indicators of cognitive development. In pedagogical practice, these principles may be operationalized through structured listening activities in which students identify

and compare musical properties that remain invariant despite contextual modifications, thereby fostering analytical, operational, and stylistically oriented listening.

Implications: The proposed framework has several theoretical and pedagogical implications. First, it situates stylistic sensitivity within the domain of operatory thinking, suggesting that the development of style recognition is structurally linked to the emergence of concrete operations rather than to mere perceptual exposure. Second, it provides a cognitively grounded basis for designing listening activities that explicitly target the recognition of stylistic invariants across contextual transformations. Finally, the proposed approach opens new directions for empirical research, particularly with regard to the examination and validation of new conservation-type tasks in music, as well as the analysis of their impact on the development of stylistic sensitivity.

Keywords: Piagetian Conservation, Music Listening, Sensitivity to Musical Styles, Concrete Operations

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A Case Study Investigating Intermediate Musicians and the Effects of a Practice Diary on Practice Behaviours and Self-Regulated Learning

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Background: Self-regulated learning (SRL) occurs when a person controls their cognition, metacognition, and behaviour to meet their learning goals. For musicians, SRL is a developed skill that typically occurs during practice (McPherson & Zimmerman, 2011). Prichard (2021) observed that teaching practice techniques to intermediate musicians improved practice behaviours; however, instruction had minimal impact on SRL. In contrast, Oborne et al. (2021) found that keeping a practice diary increased self-reported SRL in advanced collegiate musicians. Nonetheless, it is unclear how the combination of practice support systems (e.g. diaries) and SRL instruction would affect practice behaviours and SRL in intermediate students (e.g. community college students in the United States are typically at a transitionary level).

Aims: This longitudinal case study explores the impact of practice diaries on musicians' reported self-regulated learning and observed practice behaviours.

Method: The participants (N = 7) were students at a United States community college. In the first week, they were recorded practicing. After the recording, the researcher and participant immediately completed a video debrief during which the participant explained learning processes in their practice session. The next week, a researcher provided information regarding effective SRL and a practice diary. Over the following ten weeks, participants completed a diary created by Osborne et al. (2021)

to improve SRL. Finally, participants were again recorded and completed a video debrief. Data sources included completed practice diaries, practice session recordings, and video debriefs. Researchers rated SRL using 20 Likert-style questions after watching the practice videos and participant debriefs. Additionally, practice behaviours were analysed using practice frames, a method of dividing practice sessions based on goals, which also facilitates analysis of practice behaviours (Prichard, 2021). Diaries were analysed to indicate SRL trends over the semester, including descriptive statistics for forced-choice questions.

Results: Data analysis is ongoing and will be completed prior to presentation. Preliminary results suggested the minimal impact of diaries. No statistical or systematic changes were observed in SRL, with participants displaying limited self-regulation pre-/post-intervention. Practice behaviour was often characterized by minimal or unproductive goals, reactive practice, inappropriate application of practice strategies, poor time management, and helpless practice. The practice journal was often inefficiently utilized, with inconsistent completion or minimal planning/reflection.

Conclusions: The results will contribute to our understanding of the theoretical and practical implications of practice diaries for intermediate musicians. This has practical relevance for teachers who utilize support structures in student practice. Observations will contribute to understanding how musician learning processes change over time.

Keywords: Self-Regulated Learning; Individual Music Practice; Practice Diaries; Intermediate Musicians

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Temporal Experience During Jazz Improvisation: External Structure Versus Internal Engagement

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Background: The perception of time is a subjective process that includes duration and the speed of the passage of time (PoT – how fast/slow time seems to pass). While duration estimates are influenced by arousal, attention, and the temporal structure of sensory inputs, PoT appears to be mostly influenced by emotional engagement (Martinelli & Droit-Volet, 2022; Wearden, 2016). Musical improvisation constitutes a particularly rich context for studying time perception, as it combines auditory temporal structures with an attentional and emotionally engaging creative process. Despite growing evidence on how listening to music affects time perception, little empirical work has examined how musicians experience time while improvising.

Aims: This study investigated how the structure of musical improvisation structure and performance settings influence musicians' prospective duration estimates and perceived PoT. We further examined whether subjective attentional and emotional engagement mediate the effects of these two musical variables on temporal experiences, and whether instrumental roles influence time perception during improvisation.

Method: Forty-nine musicians trained in jazz improvisation performed six improvisation tasks in a 2 × 3 factorial design manipulating Performance Setting (solo vs group performance) and Improvisation Type (structured familiar harmony, structured unfamiliar harmony, and free improvisation). Each improvisation lasted between two and three minutes, with the durations unknown to the participants. Following each task, musicians estimated duration and rated PoT. Additional measures assessed emotional engagement, attentional focus, task difficulty, and familiarity using Likert scales. Linear mixed-effects models were conducted with musical variables as fixed factors, additional measures as possible covariates, and participants as random factors. To examine whether the properties of the improvised music affected duration estimates, tempo and beat salience were extracted from audio recordings using computational music analysis.

Results: Duration estimates were significantly longer for group improvisations compared to solo performances, while improvisation type had no effect. Acoustic analyses revealed that group performances exhibited more salient musical beats than solo performances, suggesting that entrainment to external rhythmic cues influenced duration estimates. In contrast, PoT varied primarily with improvisation type: free improvisation was experienced as more emotionally engaging and associated with faster perceived PoT passage than either structured condition. Emotional engagement emerged as the strongest predictor of PoT, effectively mediating the effect of the improvisation task. Instrumental roles further modulated PoT, with harmonic instrument players reporting faster PoT than other musicians in solo and structured contexts.

Conclusions: These findings reveal a dissociation between mechanisms underlying duration estimation and subjective time passage during musical improvisation. Prospective duration judgments appear to be driven mainly by the rhythmic structure of the auditory environment, whereas PoT is shaped predominantly by emotional engagement and musical complexity. Musical improvisation thus offers a powerful ecological framework for investigating how emotional engagement in creative tasks, and auditory temporal structures jointly shape human temporal experience.

Keywords: Improvisation; Time Perception; Engagement; Rhythm

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Permission to Fail: Cultivating Positive Performance Experiences Through Improvisational Theatre

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Background: Technical mastery is often prioritized in Higher Music Education, leading students to focus predominantly on instrumental accuracy to play correctly (Hultberg, 2007). However, this emphasis can come at the expense of expressive development, hindering self-confidence and negatively affecting performance experiences (McPhee, 2011). Physical involvement while playing can create meaningful connections between sound, movement, and expressive intention (Bremmer & Nijs, 2022). Pedagogical approaches that integrate bodily exploration during performance may therefore enhance expressive development alongside technical skill.

Aims: This study aimed to enhance expressive skills in master's level music students by shifting their focus from technical accuracy ("How can I play this correctly?") to expressive intention ("What do I want to convey with this piece?"). Specifically, it explored whether embodied improvisational theatre techniques could support this shift and how this approach impacted musicians' performance experiences.

Method: Eight master's students participated in nine practical sessions incorporating improvisational theatre techniques. Participants embodied fictional characters, a wide range of emotions, and improvised narratives while performing on their instruments. Through game-like and exploratory exercises, they were encouraged to experiment physically and expressively. Data were collected through pre- and post-course group interviews and participants' reported experiences after exercises.

Results: Embodying characters, emotions, and narratives through improvisational theatre enabled participants to access a different sense of "self" (Petit, 2009). This facilitated exploration of new ways of moving, being, and playing beyond conventional stylistic constraints, fostering enjoyment and expressive freedom. This aligns with research showing that embodied emotional engagement can enhance expressive movement, reduce nervousness, and foster a sense of freedom where mistakes feel less consequential (Czepiel & Luck, 2018).

Conclusions: The results highlight the importance of creating spaces for experimentation within formal music education. Encouraging expressive exploration beyond rigid success-failure frameworks can help musicians develop personal expression and confidence. Integrating improvisational theatre techniques can further support students in exploring their musicality beyond conventional constraints, fostering authentic approaches, and cultivating positive performance experiences.

Keywords: Expressive Skills, Embodiment, Improvisational Theatre, Performance, Higher Music Education

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Choosing a Classical Music Career: Motivational Dimensions and Mental Well-Being Among Hungarian Music University Students

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Background: Postponement of career choice is a growing trend in various professional fields. However, for music students, especially classical music students, the process typically begins early and follows a structured academic path (Váradi et al., 2024)

Aims: This study examined the motivational dimensions (Ryan & Deci, 2000) of classical music as a career choice among Hungarian university music students ($N = 127$) and explored the relationship between these motivational orientations and different dimensions of mental health.

Method: Data were collected online questionnaire including the Mental Health Test (Vargha et al., 2020). The survey was part of a broader, nationwide research project conducted by the Hungarian Music Council.

Results: The results showed that intrinsic emotional motivation and well-being-related motives were positively associated with general well-being, enjoyment, and creative-executive functioning (Bonneville-Roussy & Vallerand, 2020). In contrast, extrinsic motivation was negatively associated with creative-executive functioning and self-regulation.

Conclusions: As one of the first studies examining music career motivation within the Hungarian higher education framework, this research highlights the cultural specificities of motivational pathways while advocating for an educational environment that fosters student autonomy, supports identity development, and promotes psychologically healthy engagement in advanced music studies (López-Íñiguez et al., 2022). These insights are crucial for informing music education curricula and pedagogical approaches.

Keywords: Music Career Motivation; Classical Music; Higher Music Education; Mental Well-Being; Intrinsic Motivation

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Marijan Lipovšek, Ground Floor

Oral session 2: Music and Well-Being

Chair: Maruša Laure

The Strong Effects of Music to Help Sleep: The Impact of Preference

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Background: Music can be an effective aid for sleep problems (Jespersen et al., 2022), although therapeutic interventions face a particular challenge when it comes to music selection. Researchers typically choose music with similar properties (e.g. little dynamic variation), with positive results supporting a general idea of effective sleep music. However, regular listeners report listening to all kinds of music for sleep (Dickson & Schubert, 2020) suggesting a high degree of individual variability, and it is not fully understood the extent to which such personal music preference impacts sleep outcomes over typical musical recommendations.

Aims: This study aimed to better understand the relative emphasis, or interplay, between music selection and personal preferences in the efficacy of music for sleep. Using models developed previously (Kirk et al., 2025), we sampled two playlists of music predicted to be optimal for sleep based on subjective tagging by listeners (Music A) and music features only (Music B) to see which was more successful in context. Participants were asked how likely they would choose each of the playlists to go to sleep, allowing us to compare outcomes on the basis of musical content and subjective preference.

Method: A within-subjects sleep study tested the effects of music listening at bedtime on four measures of sleep behaviours; quality (SQ), onset latency (SOL), waking after onset (WASO), and efficiency (SE). After a one-week baseline, participants ($N = 30$) listened to Music A or B or silence for three consecutive nights each. Participants reported their mood and alertness at bedtime by completing a short questionnaire before playing the music and completed sleep diaries upon waking. Bayesian multilevel modelling was used to analyse each sleep outcome by playlist and preference accounting for bedtime mood and alertness.

Results: We found strong evidence for an effect of Music A on SQ, with higher SQ compared to Music B (Evidence Ratio = 37.10) and silence (ER = 62.49), but not on any other sleep measure. When coded by preference, preferred music also improved SQ (ER = 221.22) and there were further effects between the playlists for SOL (ER = 39.82) and SE (ER = 209.53). There was also an effect on WASO where listening to non-preferred music corresponded to worse WASO times (ER = 19.41).

Conclusions: Our results give some support to the outright selection of certain types of music to improve sleep quality but reveal a clear impact of preference that extends to other sleep behaviours. Sleep health is a highly individual and significant issue and effective therapies require careful consideration of individual needs and experiences.

Keywords: Bayesian Modelling, Sleep Quality, Health and Wellness

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Who Do Serbian Adolescents Admire? Musicians as Role Models and Links to Well-Being and Risk Behaviours

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Background: Role models significantly shape adolescents' behaviour. Bandura (1969) anticipated that technological advances would strengthen the influence of the media, a prediction supported by research showing that adolescents often emulate celebrities, especially actors and musicians (Rattanavichai & Siriprachaya, 2025; Stepanović Ilić et al., 2023). Exposure to such role models is also linked to adolescent well-being (Imran et al., 2021).

Aims: This study investigates the prevalence of musicians as role models among Serbian adolescents, examining the reasons for their admiration and the life domains in which their influence is perceived. It also assesses whether adolescents who admire musicians differ from those who identify with other role models or none in terms of well-being and engagement in risk behaviours.

Method: A convenient sample included 307 Serbian adolescents (16–19 years old). Participants identified a public figure role model and rated 10 reasons for their admiration (physical appearance, power, professional success, intelligence, strong personality, wealth, humanity, cheerful nature, desirable profession, fame) as well as perceived influence across five domains (behaviour, appearance, attitudes, social relationships, future plans). Engagement in risk behaviours (smoking, substance use, alcohol use, risky sexual behaviour, gambling, reckless driving) was assessed using a five-point Likert scale, and well-being by the EPOCH scale.

Results: Most adolescents (83%) have a public-figure role model, with 22% identifying musicians, predominantly girls (84%). The most admired are female turbo-folk and pop singers. Musicians are appreciated for their strong personality, cheerfulness, intelligence, and humanity. They influence attitudes, appearance, and social relationships. Nonparametric analyses revealed no differences in well-being or risk behaviours between adolescents who admire musicians, those who have other idols, and those without role models.

Conclusions: Overall, musicians represent a salient category of role models among Serbian adolescents, particularly girls, reflecting a global rather than culturally specific pattern. However, the specific musicians admired vary across cultures. Musicians are admired for their personal qualities, and adolescents perceive their influence across various life domains. Admiration of musicians is not associated with well-being or risk behaviours. This may reflect the predominance of girls among adolescents who admire musicians, as girls across cultures engage less in risk behaviours and tend to prefer music genres less associated with such behaviours (Bogt et al., 2021).

Keywords: Adolescents, Musicians, Role Models, Well-Being, Risk Behaviours

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Reframing Music Performance Anxiety: An Ecosystemic Study of Musical Performance

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Background: Music performance anxiety (MPA) is often conceptualized as an individual deficit to be treated through symptom reduction – an approach that continues to dominate both pedagogical discourse and clinical interventions (Kenny, 2011). However, performers' experiences are embedded within music performance ecosystems: interdependent educational, professional, cultural, and interpersonal contexts that shape musical self-concept, learning trajectories, and coping resources (O'Neill, 2017; Spychiger, 2017). An ecosystemic lens (Bronfenbrenner and Morris, 2006; Gibson, 1979) may therefore offer a more comprehensive account of how MPA emerges, stabilizes, and can be transformed across a musician's development and performance experience, particularly through long-term interactions among training environments, evaluative performance cultures, and identity formation processes.

Aims: This study aimed (1) to identify ecosystemic interactions that contribute to the emergence and maintenance of MPA, and (2) to clarify how these interactions relate to the formation of musical self-concept and to pathways of managing MPA beyond purely individual-level interventions.

Method: We conducted biographical-narrative interviews with 11 established performers (six female, five male; aged 23–62) representing the violin, viola, cello, flute, piano, harp, and voice. Participants had experience in solo, chamber, and orchestral performance within Western classical music contexts, and many also held pedagogical roles rooted in the same tradition. Data were analysed using grounded theory methodology to generate an integrative account of ecosystemic processes linked to MPA.

Results: The analysis yielded four interrelated dimensions: (1) the demanding stage, emphasizing how dynamic interactions among audience, space, co-creators, and performance goals shape performance pressure; (2) the development of psychological resilience, describing how coping capacities are scaffolded – or undermined – by learning and professional environments; (3) musical self-concept as a reflection of experience, showing how identity becomes shaped through repeated cycles of feedback, comparison, and internalized norms; and (4) performance as a process of transformation, where successful management of MPA depends on shifting from training-oriented control (analysis, self-criticism) to holistic, embodied execution ("performer attunement").

Conclusions: The findings underscore the need for an ecosystemic reframing of music performance anxiety, demonstrating that risk and resilience are co-shaped through long-term interactions within educational and professional cultures. Preventive and supportive interventions become accessible through the transformation of the traditional virtuoso model – often internalized at an early stage –

by moving beyond an exclusive focus on perfect preparation and flawless execution to include the psychological, relational, and situational processes that enable performer attunement in the moment of performance. This approach shifts MPA from a private "problem" toward a shared responsibility of music performance ecosystems, with implications for pedagogical practice, institutional design, and health-oriented professional development.

Keywords: Music Performance Anxiety (MPA), Musical Self-Concept, Music Performance Ecosystem, Performance Transformation, Performer Attunement

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"Comfortably Numb": Attachment Patterns and Music-Based Mood Regulation in Adolescence

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Background: Adolescents frequently use music to regulate mood, enhancing positive emotions (e.g. Entertainment, Strong Sensation) and coping with negative ones (e.g. Discharge, Solace, Diversion) (Saarikallio, 2012). Their music preferences may reflect attachment styles; in adults, attachment anxiety and avoidance relate both to preferences for songs expressing anxious or avoidant themes (Alaei et al., 2022) and to music-based mood regulation strategies (Andersson, 2017).

Aims: This study aims to examine associations between adolescents' attachment and their use of music-based mood regulation strategies, assessing whether insecure attachment dimensions relate to specific music strategies.

Method: The sample included 445 Serbian adolescents (12–18 years, M = 15.62, SD = 1.96). Attachment was assessed with the AUAQ (West et al., 2000; α = .85) and RAAQ (West et al., 1998; α = .86), and music-based mood regulation with the B-MMR (Saarikallio, 2012; α = .94). All instruments were translated into Serbian using back-translation.

Results: Canonical correlation analysis examined associations between attachment and music-based mood regulation. The first canonical function, The Sound of Letting Go (r = .40), was statistically significant, Wilks's λ = .743, F(42, 2030) = 3.17, p < .001, and indicated that higher inadequate protection and attachment-related anger were associated with greater use of music for Discharge and Solace. The second canonical function, The Sound of Secure Connection (r = .27), was also significant, Wilks's λ = .882, F(30, 1734) = 1.85, p = .003, showing that stronger goal-corrected partnership and lower fear of abandonment were linked to more frequent use of music for Entertainment, Revival, and Diversion.

Conclusions: Overall, the findings suggest two distinct patterns of engaging with music in the context of family relationships. The first function, The Sound of Letting Go, reflects an affectively

intense use of music, primarily as a channel for anger, serving as an emotional outlet and co-regulator. In contrast, the second function, The Sound of Secure Connection, represents a more adaptive and everyday engagement with music, reflecting the use of music as a flexible resource for maintaining or restoring positive mood within the context of relatively secure relationships. These patterns illustrate two distinct psychological dynamics underlying adolescents' music-based mood regulation. Further research is needed to explore additional moderators and mediators of this relationship.

Keywords: Adolescence, Attachment, Music, Music-based Mood Regulation, Emotional Coping

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Music Therapy as a Psychosocial Intervention in the Treatment of Substance Use Disorders

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Background: Substance use disorder (SUD), as defined in the DSM-5, is a problematic pattern of substance use that causes clinically significant functional impairment or emotional distress, including loss of control, craving, tolerance, and continued use despite negative consequences (American Psychiatric Association, 2013). Music therapy is a psychosocial intervention that may support recovery in individuals with SUD by engaging emotional, motivational, cognitive and social processes.

Aims: This paper aims to review the impact of music therapy as a complementary treatment for adults with SUD. It focuses on selected scientific literature examining how music-based interventions may influence the brain networks associated with emotion, motivation, and reward processing in addiction recovery.

Main contribution: Modern music therapy, when delivered by trained professionals, represents a structured and adaptable psychosocial intervention that may complement standard treatment for adults with SUD and mental health disorders (Silverman, 2022). While music may act as a relapse trigger when associated with substance-related memories, therapeutic work can also help reframe these associations and support emotional processing and insight (Horesh, 2010). Systematic reviews suggest that music therapy may improve treatment motivation and reduce psychological distress in individuals with SUD, although further high-quality randomized controlled trials are needed to strengthen the evidence base (Silverman, 2022). Jabara and Ooi (2024) describe music as a universal medium capable of eliciting emotional responses across cultural and linguistic boundaries. Their review suggests that music engages neural systems involved in reward, motivation, emotion and arousal, activating distributed brain networks including frontal, temporal, parietal, cerebellar, and limbic regions. This widespread neural activation may support cognitive, emotional, and behavioural processes relevant to recovery, although its clinical significance in SUD remains under

investigation. Similarly, pleasurable music has been shown to activate dopaminergic reward pathways that are also involved in responses to psychoactive substances, suggesting potential relevance for craving regulation and addiction-related memory processes (Fachner et al., 2023).

Implications: Music therapy represents a promising psychosocial intervention in the treatment of substance use disorders. When integrated into multidisciplinary care, it may enhance patient engagement and provide meaningful supportive therapeutic experiences that support the recovery process. In addition, music therapy can complement existing psychotherapeutic and pharmacological approaches by offering structured strategies that assist with coping and emotional regulation. Music therapy may improve adherence to treatment, increase engagement in therapeutic activities, and provide clients with sustainable coping strategies. In this way, it serves as a flexible intervention within a broader treatment framework for individuals with SUD.

Conclusions: Music can act as both a potential trigger and a therapeutic resource. However, when strategically applied, music therapy engages reward systems, supports emotional regulation, and fosters social connectedness, offering a flexible, evidence-informed intervention to improve outcomes for individuals with SUD.

Keywords: Memorized Performance; Saxophone Performance; Memorization Strategies; Mental Rehearsal; Artistic Research

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Perceived Benefits of Choral Singing and Well-Being Among Youth: Gender Differences

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Background: Choral singing is a widely practised group activity associated with emotional regulation, social connectedness, and personal growth (Clift et al., 2010; Linnemann et al., 2017). These experiences are particularly relevant during adolescence and emerging adulthood, a period of social and emotional sensitivity (Arnett, 2013). Although previous research suggests choir participation supports psychological well-being (Livesey et al., 2012) and life satisfaction (Oriola-Requena et al., 2023), limited attention was given to how youth perceive the benefits of choral singing across gender. Understanding gender-specific experiences may inform more inclusive practices that support youth well-being and social sustainability.

Aims: This cross-national study examined gender differences in the perceived benefits of choral singing among youth choir singers and explored the associations among perceived choral benefits, psychological well-being and satisfaction with life.

Method: The participants were 313 youth choir singers (aged 15–24) from Slovenia, Serbia, and Croatia (249 females, 64 males). Participants completed an online questionnaire assessing perceived benefits of choral singing using the Choral Activity Perceived Benefits Scale (CAPBES), psychological well-being (WHO-5), and satisfaction with life (SWLS). Gender differences in perceived benefits were examined using the MANOVA and independent samples t-tests. Multiple linear regression analysis assessed whether perceived choral benefits predicted well-being and life satisfaction.

Results: Significant gender differences were found across all CAPBES dimensions, with female participants reporting higher perceived musical, emotional, and social benefits than males. The largest gender differences were observed in the satisfaction and group engagement subscales. Regression analyses indicated that emotional benefits (optimism) and social engagement within the choir significantly predicted psychological well-being in the total sample and among females. For males these associations did not reach statistical significance, likely due to smaller sample size. Perceived choral benefits were weakly associated with satisfaction with life, with no specific gender-related patterns observed.

Conclusions: Choral singing appears to primarily support the emotional and social dimensions of well-being rather than general life satisfaction among youth. This underscores the relevance of inclusive, emotionally and socially supportive choir environments. Considering gender differences in perceived benefits may inform equitable and sustainable community-based practices that support well-being of all youth.

Keywords: Choral Singing; Youth Well-Being; Gender Differences; Perceived Benefits; Psychological Well-Being

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Trio Lorenz Hall, 1st Floor

Oral session 3: Processing Music

Chair: Richard Parncutt

The Psychology of Music Within Bulgarian Arranged Folk Music: A Cross-Cultural and Neuroscientific Perspective

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Background: First, Bulgarian folk music evolved significantly in the 20th century, absorbing elements of classical music. Since most psychological studies on listeners' affective responses focus on the Western classical tonal system, this hybrid style – emerging prominently since the 1950s – presents an intriguing case for extrapolation. Second, cross-cultural studies reveal a universal aspect of music: listeners from diverse backgrounds often recognize intended emotions in unfamiliar musical traditions. While enculturation and musical training refines emotional responses to familiar music, young children initially react similarly to various musical styles, suggesting a broader, innate sensitivity.

Aim: Our paper aims to synthesize the most recent findings on affective responses to music, examining parameters beyond just musical features, using the paradigm of Paul Hodgins (1992) but also to see how much we can apply them to local Bulgarian field thanks to Bruno Nettl's systemic relation between local music and Western music. By integrating neuroscience into Hodgins' analytical structure, we seek to explore how Bulgarian orchestrated folk music influences listeners' emotions.

Main contribution: First, the discussion will focus on how relevant the study of Gagnon and Peretz (2003) can be relevant as well as the impact of enculturation by Sandra Trehub's research (1994–2003). Second, we aim to deepen the topic thanks to cross-cultural studies, in order to see how they could be applicable to Bulgarian Folk music and to what extent. On the one hand, neuroimaging studies (e.g. Nan, Knösche, Friederici) show that familiar music – like Western classical music – triggers stronger brain reward responses than unfamiliar genres, indicating that culturally aligned music enhances emotional engagement. Meanwhile, on the other hand, cross-cultural research (Balkwill, Thompson, Fritz) confirms that listeners can identify basic emotions (joy, sadness, fear) in foreign music, such as North Indian raga, based on tempo and timbre. Even isolated groups like Cameroon's Mafa people recognize emotions in Western music, reinforcing music's role as a universal emotional language, though cultural nuances persist.

Implications: With the implication that Bulgarian Folk Music has been rearranged to meet classical music standards, and cross-cultural studies showing that to some extent there may be a universality to musics around the world, we want to hypothesize and start a discussion about the relevance of such findings in the psychology of music for the Bulgarian context.

Keywords: Ethnomusicologist, Bulgarian Folk Music, Music Training, Enculturation, Psychology of Music

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Tonal Processing Across Auditory and Visual Modalities

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Background: Tonal processing operates within an internalized hierarchy where scale degrees differ in perceived stability and function (Krumhansl, 1990). Concurrently, patterns of pitch and rhythmic organization shape memory representations, allowing listeners to recognize a tune even when transposed to a different key (Peretz & Zatorre, 2005). However, in trained musicians, cognitive engagement frequently relies on both auditory and notational representations. As a result, tonal context becomes not only an auditory but also a visual phenomenon, shaped by the graphical configuration of accidentals and pitch placement associated with a given key. Preliminary evidence from a small, unpublished pilot study suggests these effects, which the current study seeks to examine in a larger sample.

Aims: The pilot study aimed to examine whether the choice of key, understood as both an auditory and visual construct, affects the cognitive processing of tonal material in a melodic dictation task. Specifically, we investigated whether performance differs when participants aurally encode, retain, and notate the same transposed melody across keys that differ primarily in their visual-notational complexity, despite preserving identical tonal relations. Given the notable findings of the pilot study, the ongoing study aims to replicate and extend these results in a substantially larger sample to increase statistical power and strengthen the reliability of the findings.

Method: In the pilot study, 20 music academy students completed a melodic dictation task performed live at the piano, first in C major. After four months, unaware they would repeat the task, they completed the same dictation but transposed to B major. Based on our teaching experience, this temporal distance was sufficient to minimize memory effects. Performances were scored using a detailed point-based system and analysed using a paired-samples t-test and a two-factor repeated-measures ANOVA (2 × 6 design: Key × Bar). In the ongoing study ($N = 72$), participants completed the first phase (C major condition). The second phase (B major condition) will be administered following the same temporal delay and procedural controls. The same scoring criteria and statistical approach are planned, with the possibility of extending analyses through mixed-effects modelling to account for individual variability.

Results: The pilot results demonstrated a significant decline in performance when participants completed the dictation in B major compared to C major, $t(19) = 8.03$, $p < .001$. A repeated-measures ANOVA confirmed a significant effect of key on performance, $F(1,19) = 69.10$, $p < .001$. The results of the larger sample ($N = 72$) are currently being collected and analysed and will be presented as part of the ongoing study.

Conclusions: Preliminary findings indicate that tonal processing in dictation tasks is not exclusively determined by auditory relational structures but is significantly influenced by the cognitive processing

of visual aspects of musical notation associated with a given key. The expanded study with a larger sample will provide stronger empirical grounding and greater validity. The findings may also provide a basis for future research examining whether key-related visual-notational factors influence other domains of musical cognition and performance, including improvisation, sight-reading, and real-time musical processing.

Keywords: Tonality, Auditory Perception, Musical Notation, Visual Representations

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Instrument-Specific Absolute Pitch: Mechanisms and Prevalence Across Musical Specializations

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Background: Recent years have seen the emergence of a more nuanced understanding of absolute pitch (AP). Non-musicians have widespread, deliberate, and involuntary access to AP information (Evans et al., 2024), and musicians achieving pitch identification above chance belong to the same continuum as near-perfect-scoring global AP possessors (Van Hedger et al., 2020). While it has long been known that pitch identification is better for complex tones than for timbrally sparse sine tones (Vanzella & Schellenberg, 2010), Reymore and Hansen (2020) only recently theorized the phenomenon of "instrument-specific absolute pitch" (ISAP), whereby certain musicians label pitch significantly better for their own instrument of training than for other timbres. However, ISAP has only been demonstrated in professional oboists, with a prevalence of ~38% and a primary reliance on timbral cues resulting from idiosyncratic tone production across the oboe's range (Hansen & Reymore, 2024). But what about other wind, brass, string, and keyboard instruments with fundamentally different modes of tone production?

Aims: This study aims to establish the prominence of ISAP across a wide range of instruments and genre specializations (i.e. jazz/rock/pop vs classical).

Method: We adopted a successful experimental protocol from Hansen and Reymore (2021). In six 16-trial blocks using stimuli from McGill University Master Samples, advanced-level conservatory students (target $N = 100$) identified pitches in three different timbres: their primary instrument, piano, and a randomly selected second control from a different instrument family.

Results: Preliminary analysis ($N = 25$) found five ISAP-possessors (pno (2), vln, tbn, asax), four global AP-possessors, and 17 musicians exhibiting above-chance performance for their primary instrument. Only two participants demonstrated no above-chance performance for any instrument. ISAP possessors' reliance on the candidate mechanisms of timbral cues and motor imagery will be assessed in follow-up experiments using artificial pitch-shifting and interference tasks.

Conclusions: This basic research may inform music-pedagogical strategies towards teaching aural skills in more timbre-sensitive manners.

Keywords: Absolute Pitch, Timbre, Motor Imagery, Perception

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Exploring Eye Movement Patterns During Analysing Music and Piano Sight-Reading Among Music Students in Croatia

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Background: Recently, gaze studies using eye-tracking technology have advanced significantly, contributing to our understanding of cognitive processes in various domains, including music education (Fink et al., 2018; Björk et al., 2021; Perra et al., 2022). Most studies focus on sight-reading during music performance, and less attention is given to analytic silent reading, despite recent efforts to distinguish the unique cognitive patterns present when musicians inspect a score without immediate performance (e.g. Maturi & Sheridan, 2020; Imai-Matsumura et al., 2021).

Aims: This study aims to fill a gap in the literature by analysing eye-movement patterns during music analysis and comparing them with those during sight-reading in music performance. The principal objective is to determine the relationship between competencies and reading styles in music analysis and sight-reading skills, providing new insights applicable in higher music education.

Method: The research will unfold in four phases, with the initial pilot phase focusing on a comparative analysis of eye-movement patterns recorded with a video-based head-mounted eye tracker. Participants will include approximately 15 higher education music students at different study levels, engaging with musical scores that feature fundamental structures such as scales, chords, and basic rhythmic phrases. Eye-tracking data (number, duration and location of eye fixations, eye-hand span) will be collected and analysed qualitatively and quantitatively to identify patterns correlated with varying levels of expertise in sight-reading and music analysis.

Results: Preliminary results are expected before the conference, enabling discussion of the implications of eye-movement differences among students with different reading styles, music analysis and performance skills. These findings are expected to inform the design of further empirical studies throughout the project, which runs from 2026 to 2029.

Conclusions: The proposed research holds promise for enriching the academic landscape of music education in Croatia by employing innovative methodologies such as eye-tracking. The findings will not only deepen understanding of the interplay between sight-reading and music analysis but also inform instructional strategies tailored to students' proficiency levels.

Keywords: Eye-Tracking, Music Analysis, Sight-Reading, Music Education Research, Croatia

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The Effect of Cognitive Training on the Reproduction of Musical Notation in a Musical Memory Task

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Background: Musical memory is a specific but theoretically significant form of cognitive functioning that involves the interaction of short-and long-term memory, executive functions, and metacognitive processes (Che et al., 2022; Olszewska et al., 2021). Although its importance is recognized in the psychology of music, empirical research systematically examining the potential to improve musical memory through structured cognitive training remains relatively scarce, particularly in the context of formal music education (Radoš, 1996).

Aims: We aimed to examine the importance of applying cognitive training in music education. Two studies focused on musical memory, short and long-term memory, and metacognitive self-evaluation processes (Radoš, 1998) were conducted. Both studies lasted five weeks, with the first and last weeks devoted to pre-and post-test measurements. The training lasted three weeks.

Method: In study 1, four participants completed cognitive training (a musical memory programme) between the pre-and post-test measurements (without a control group). The training consisted of tasks involving the reproduction of melodic examples and semantic elaboration of the material through the analysis of J.S. Bach's Two-Part Invention No. 4. A test battery comprising a knowledge test, a task involving the reproduction and interpretation of musical notation, and a self-evaluation test was administered. The data were analysed with the Wilcoxon Signed-Rank Test. In study 2, six participants were randomly assigned to an experimental (EG) and a control (CG) group. Both groups completed the same training as in study 1. The EG additionally completed training on the Dual N-Back task (DNB), which targets working memory functions. Compared to study 1, the training was administered via the Music Memory application, created by the authors. The test battery was also administered via the application and included tasks from study 1, the short-term music memory task and DNB. We calculated the difference between the pre- and post-test scores (gains) and performed a Mann-Whitney U test.

Results: In study 1, improvement was observed across all tasks in the test battery. Although the Wilcoxon tests did not reach conventional levels of statistical significance, large effect sizes were observed across measures (r = .74–.91), suggesting potentially meaningful pre–post improvements. Given the small sample size, these findings should be considered preliminary. In study 2, both groups showed better performance across all tasks in the test battery, i.e. all difference scores were positive.

The experimental group achieved larger gains compared to the control group. However, only the difference for the DNB was significant (p = .034). A medium effect size was observed for note reproduction (r = .43), whereas a large effect was observed for DNB (r = .87). This suggests limited transfer of the additional DNB training to other measures. For the same reason as in study 1, the results should be interpreted with caution.

Conclusions: The results of these small-scale pilot studies indicate positive changes associated with training on both short- and long-term music memory and self-evaluation. Additional working memory training yielded specific improvements in working memory. However, given the small sample size, these findings should be considered preliminary and require replication in larger samples.

Keywords: Cognitive Training, Psychology of Music, Short-Term Memory, Long-term Memory, Executive Functions

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Primož Kuret Hall, 1st Floor

Oral session 4: Music Performance

Chair: Ilonka Pucihar

"Between Enthusiasm and Doubt": The Attitude of Instrument Teachers Towards the Use of Digital Technologies in Music Education

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Background: The integration of information and communication technologies (ICT) into music education has increased significantly in recent years, particularly following the COVID-19 pandemic. In instrumental teaching, digital technologies offer new possibilities for instruction, feedback, and creative work. However, their adoption remains uneven and is strongly influenced by teachers' attitudes, beliefs, and professional contexts.

Aims: This systematic literature review examines how instrument teachers perceive and use digital technologies in music education, and identifies the key factors that influence their attitudes and practices. The review seeks to provide a structured overview of current empirical research and to clarify the conditions that support or hinder meaningful technology integration.

Main contribution: Following the PRISMA framework, this review synthesizes empirical studies published within the last decade that investigate the attitudes, beliefs, and practices of prospective and active instrument teachers regarding digital technologies. Relevant studies were identified through systematic searches in Web of Science, ERIC, and other specialized databases in music education. Inclusion and exclusion criteria were defined based on population, context, study type, and outcomes. Selected studies were analysed with regard to research design, sample characteristics, types of technologies used, and reported findings. The synthesis reveals that instrument teachers generally express positive attitudes toward ICT. Nevertheless, the actual use of digital technologies in instrumental teaching remains limited and is often restricted to supportive or traditional applications, such as media playback or presentation tools. At the same time, the literature highlights considerable pedagogical potential, including individualized learning, enhanced motivation, improved feedback, and new forms of creative engagement. Several barriers to integration are consistently reported, including concerns about increased workload, technical challenges, insufficient competencies, and the perceived incompatibility of ICT with established pedagogical traditions.
Implications: The findings demonstrate that positive attitudes toward ICT are an important but insufficient condition for its meaningful integration into instrumental teaching. Effective implementation depends on the alignment of individual competencies, pedagogical approaches, and institutional conditions. The review highlights the need for targeted professional development that goes beyond technical training and supports reflective, pedagogically grounded, and student-centred uses of digital technologies in music education.

Keywords: ICT, Music Education, Instrumental Teaching, Teacher Attitudes, Technology Integration

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The Alexander Technique in Higher Music Education: Enhancing Musical Performance Through Embodied Awareness

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Background: Higher music education prepares students for artistic excellence under demanding conditions that combine intensive practice, refined performance expectations, and psychological pressure. Many musicians develop habitual patterns of unnecessary effort and tension that can interfere with freedom of movement, breathing coordination, and consistency under stress. In response, performer-health and performance pedagogy increasingly discuss embodied educational approaches that complement instrumental and vocal training by supporting how musicians organize themselves in action. The Alexander Technique is a pedagogical method of body–mind education that teaches individuals to recognize habitual patterns of tension and to develop more efficient

coordination in movement and activity. Rather than prescribing corrective exercises or fixed postures, it offers a learnable process of awareness and choice in how one uses oneself. As part of this learning, musicians often develop clearer internal "body maps" and anatomical awareness that support more efficient coordination in performance tasks.

Aims: This presentation introduces the Alexander Technique to an interdisciplinary audience and examines its relevance as a pedagogical approach within higher music education. It clarifies the foundational principles of the technique and discusses how these may enhance musical performance by supporting coordination, attentional clarity, and adaptive responses to performance pressure.

Method: The presentation illustrates typical applications in conservatoire teaching, such as initiating sound with less force, maintaining mobility through technically demanding passages, and using brief pause-and-reset strategies during practice to prevent fixation and restore coordination. The

presentation is primarily practice-based, while acknowledging the published research and performer-health literature that discuss Alexander Technique lessons in musician and student contexts.

Results: Applied to music performance, these principles help musicians explore reductions of unnecessary over-effort and support greater freedom of movement, breathing integration, and technical reliability under pressure. Within performer-health discourse, the Alexander Technique is described as one established strategy for balancing physical strain and supporting constructive responses to stress in musicians.

Conclusions: By presenting the Alexander Technique as an educational resource rather than a therapeutic intervention, the talk argues for its value as a complement to performance training in higher music education. It offers transferable tools that can support technical consistency, artistic freedom, and sustainable self-management throughout professional life.

Keywords: Alexander Technique, Music Performance, Higher Music Education, Embodied Pedagogy, Coordination

Physical and Psychological Challenges in Music Performance: How to Deal with Performance Anxiety?

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Background: Many musicians struggle with stage fright and anxiety during public performances. This can hinder successful performances from the beginning of musical learning and affect pupils in music schools, students at music academies, and professional musicians.

Aims: This paper aims to present selected theories of music performance anxiety (MPA) and methods for addressing anxiety-related problems in music performance.

Main Contribution: The paper explains how performance anxiety can be addressed in practice, ranging from simple methods of mental relaxation before and during performance to more complex approaches involving the mental learning of musical notation and the integration of mental training into students' everyday instrumental practice.

Implications: The presented approaches may help music pupils, students, and professional musicians manage stage fright and performance anxiety more effectively. Incorporating mental relaxation, mental learning, and mental training into regular instrumental practice may support more confident, focused, and successful musical performance.

Keywords: Music Performance, Performance Anxiety, Mental Training, Cognitive-Behavioural Therapy, Psychological Reactions

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Music in Everyday Life: How Daily Musical Experiences Shape Emotion and Social Feeling

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Background: Music is a pervasive element of everyday life worldwide (Bonneville-Roussy et al., 2013) and appears to play a central role in emotion regulation (Lonsdale & North, 2011). Musical engagement has also been linked to empathy (Rabinowitch et al., 2012) and prosocial tendencies (Fukui & Toyoshima, 2014). However, relatively little is known about how everyday musical activities shape momentary emotional experiences in naturalistic contexts. In particular, the within-person dynamics linking daily musical engagement and the subjective quality of musical experiences to fluctuations in affect and socially oriented emotional states remain underexplored, especially in ecologically valid, real-world contexts.

Aims: The present study aimed to examine whether daily contact with music is associated with within-person fluctuations in mood and music-induced emotions, including socially oriented emotions such as feeling moved, in everyday life.

Method: We conducted a diary study (N = 35; five consecutive days, with two to three measurements per day and a minimum of 12 observations per participant). Participants reported their musical activities, current mood, music-induced emotions measured with an instrument inspired by the Geneva Emotional Music Scale (GEMIAC; Coutinho & Scherer, 2017), as well as positive and negative social interactions. Data were analysed using linear mixed-effects models, allowing us to disentangle within-person and between-person effects.

Results: Multilevel analyses showed that, within individuals, higher-than-usual engagement with music predicted more positive general music-induced affect and stronger feelings of being moved. During music episodes, liking the music was robustly associated with higher mood valence, higher energy, and stronger positive music-induced emotions. Liking also showed a tendency to relate to lower negative music-induced emotions and greater feelings of being moved. Moreover, a significant interaction emerged at the within-person level: when negative social experiences were elevated relative to an individual's typical level, music activities were associated with increased positive and decreased negative music-induced emotions, consistent with a context-dependent regulatory effect.

Conclusions: The findings suggest that everyday musical activities function primarily as situational regulators. Music appears particularly beneficial under heightened negative social conditions, amplifying positive and attenuating negative music-induced emotions. Notably, experiences of being moved may represent a socially oriented emotional mechanism through which music facilitates affiliation and meaning-making in everyday life. These results underscore the value of diary

methodologies for capturing dynamic affective processes and suggest that musical engagement may serve as a naturally occurring resource for coping with adverse social experiences.

Keywords: Music, Diary Study, Emotion Regulation, Music-Induced Emotions, Being Moved

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1–0 for Orff – Do Game Situations Promote Performance? Discussion of Study Results on the Internalization of Elemental Musical Skills

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Background: Elemental Music Pedagogy (EMP) is a movement-oriented variant of music education that also lies within Orff's tradition. It uses a variety of artistic media for expression. Imagine EMP is like a football game, providing the game scenario. Instruments are gathered around the field. Voices, speech, songs and plenty of movement are used during the teaching sequences. An EMP home game is always played in a group and focuses on creative expression and skilfully combining different art forms. The aim is to create meaningful, dynamic musical goals that are both personal and shared.

Aims: The referee wonders whether children perform better after taking part in Orff matches. This study examines the internalization of Elemental musical skills through music and movement activities in primary school children. The focus was on whether those who participated in music and movement matches (the intervention group) performed better than the control group, who did not play games during the study period.

Method: As part of the study, 624 players (children) aged eight to 12 from 38 teams (classes) in rural, suburban and urban regional leagues were examined. The children's Elemental musical skills, as assessed by the developed items, were evaluated alongside the other players in their team at three measurement points (pre-post-post). As factors such as the players' motivation, previous experience, cognitive abilities and socioeconomic background can influence the outcome, and the commitment, prior knowledge and self-efficacy of the coaches (who are primary school teachers) also appear to be significant, the data were estimated using multilevel modelling (MLM).

Results: Structural equation modelling and multilevel analysis show that significant variables affecting learning of Elemental musical skills include the players' motivation, prior knowledge and

cognitive abilities, as well as the (Orff) teaching principles of the trainers. Additionally, one model will be discussed that considers both team-related factors and individual players' personal learning time.

Conclusions: Play-based interventions can improve performance. The study showed that Orff interventions by experienced and qualified teachers can significantly improve performance in terms of music skills. Other coaches (primary school teachers) could also use adapted tools to assess and evaluate their teams' (classes') current skill levels in a group context, and track changes in performance.

Keywords: Elementare Musikpädagogik, Elemental music pedagogy, Orff-Schulwerk, Elemental Musical Skills, Multilevel Modelling

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Piano Performance of Béla Bartók's Two Elegies. Using References Toward Modelling an Integrative Practice Perspective of Musical Components and Their Expressivity – A Case Study

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Background: Performing compositions requires the musician to engage with many issues. Thus, optimizing piano practice requires a broad perspective, in addition to decisions regarding the choice of technical and musical resources, deepening the connection between the musical context, organization decisions enhancing also a greater connection of music components, applied body movements in piano playing and the intended sound effects related. This case study is part of research that examines the piano repertoire by different composers and styles, this presentation focuses on the integrative practice of the Two Elegies (Két Elégia) by Béla Bartók (Bartók, 1992, 1967). The highlighted excerpts are analyzed from the concept of modeling (Palmer 1997, 1989; Souza, 2019) applied to musical interpretation and performance. The study was carried out through analyzing technical strategies used during training and pianistic practice to operationalize integration between anticipation (Huron, 2006) for the technical control of body movements (Magill & Anderson, 2017; Schmidt & Lee, 2005), cognitive factors (Menary, 2010), dealing with the composition context (Bargh, 2006; Lerdahl, F.; Jackendoff, R.,1983), musical text (Goebl, 2017; Rink, 2015), its expressiveness (Gabrielson & Juslin, 1993; Juslin, 2003) and artistic performance.

Aims: Adding to the performance of the Elegies, we intend to investigate excerpts that bring to practice wide technical and musical work situations, showing aspects of the piano writing, and rhythmic-melodic specific characteristics in some of these, accompanied by specific interpretative options, in order to enhance technical and musical assertiveness during the practice and pianistic realization of the musical components. To optimize performance training, we will apply movement

cycles and gesture anticipations, both as strategies for executing specific musical characteristics and in the motivational context of the Two Elegies.

Method: As exploratory research, in this case study (Yin, 2018) we explore interdisciplinary approaches to the planning, direction and simplification of body movement (Davidson & Correia, 2002; Sloboda 2008). The application of strategies such as 'movement cycles' and anticipation (Póvoas, 2006; Póvoas & Barros, 2017) are related to the design of excerpts from the Bartok's Two Elegies. The theoretical and methodological bases are interdisciplinary, regarding the literature of piano technique, and related areas of the human movement, psychology of music, directed to the expressiveness and continuity of the inherent musical discourse.

Results: Preliminary results show that the previous planning of movements in flexible gestures and their organization based on the musical text and its context, considering its motivational aspects (Sloboda, 2008; Lehmann, A. C.; Sloboda, J. A.; Woody, R. H., 2007) in the composer's choice of musical genre, are factors that help for interpretative modeling on the sense of a more objective musical-instrumental practice and the assessment of focused excerpts performance (Lebler & Harrison, 2017).

Conclusions: As a result, it is understood that, even considering variables, the individual practice anticipating the relationship between composition levels when appropriate for musical achievement of actual execution in practice, we can shorten the adjustment period between training and better realize musical performance.

Keywords: Two Elegies, Béla Bartók, Musical Modeling, Piano Performance, Piano Practice, Musical Components, Case Study

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13:00 – 14:00

Poster session

Entrance Hall, Ground Floor

Troubadour, a Music-Theory Enhancer Application: Staying in Touch with Music and Learning Music Theory

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Background: In the digital age of e-learning, education has become an increasingly important subject of discussion, with new technologies emerging on an almost daily basis, and it has also become increasingly difficult to employ and emphasize the traditional means of learning alone. At the same time, the COVID-19 pandemic changed the world with regard to the period of mandatory home isolation, an experience that caused many people to lose touch with reality, and specifically with social activities, which also include activities featuring music, since this is one of the most socially important phenomena known to man.

Aims: With Troubadour, an application which helps users develop and enhance their music-theory and auditory skills, we offer new possibilities and means of keeping in touch with music and learning music theory from the comfort of your home, school environment or elsewhere. The application was designed as an open-source online learning platform and as a standalone mobile application, accessible on Android and iOS devices. What sets the ideology of the app apart from traditional means of learning is the fact that it is backed by ludified (i.e. gamified) elements in order to make the learning experience more enticing, efficient, and memorable. Our goal is to evaluate the adequacy of the application's features and how well they could be incorporated into several school environments, see Pesek et al. (2022) and Žnideršič et al. (2024).

Method: To begin our evaluation, we first invited several music schools to participate. After adding participating schools to the classroom section within the application where teachers assigned their pupils homework (with the exercises: Naming Notes, Interval and Chord Dictation, Singing, Recognition, and Rhythmic Quizes), the pupils were given questionnaires application to determine their age, gender, and musical experience. During the evaluation, we were monitoring pupils' activity and collecting data, such as time spent on specific exercises, completion and incompletion of exercises to assess exercise difficulty and effectiveness, number of log-ins per day, week, month, and what time of day users engage with the app the most. After the evaluation, we sent out the final questionnaire asking about pupils' and teachers' experience with using the application and how it fits into their learning habits and music learning environments.

Results: The evaluation showed that pupils and teachers reported heightened motivation and engagement in learning music theory. One of the key factors in achieving this outcome are the ludified elements implemented within the Troubadour application, enabling users to take a lighter, unburdened approach towards learning music theory.

Conclusions: To conclude, the evaluation has proven that the application has a great effect on learning music theory in pupils and simultaneously serves as a great complementary teaching tool for teachers. In the future, we wish to extend the application's usage to a larger scale, both locally and abroad, which could be made possible by introducing polylingual language interfaces apart from Slovenian and English.

Keywords: Music Theory, Teacher Aid, Ludification, Music Education, E-Learning

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Modern Approaches to Accessing Audio Materials and Their Use by Music Teachers in Slovenia

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Background: Listening to music is one of the fundamental activities in music theory lessons in Slovenian music schools. It supports the development of musical abilities, fosters analytical perception, and enables the acquisition of theoretical and structural musical knowledge, while also encouraging students to articulate their musical experiences and ideas. The national curriculum encourages the use of audiovisual media when presenting listening examples; however, not all music theory classrooms have the necessary technological resources. Moreover, teachers retain wide autonomy in selecting listening examples and in deciding how audio materials are accessed, stored, and managed. With new sound reproduction technologies emerging rapidly, an important question arises as to how music theory teachers keep pace with technological innovations and changes and how they integrate them into their teaching. Through classroom observations conducted during student placements in various music schools, we noticed that most teachers rely primarily on digital music recordings. Nevertheless, their approaches to accessing, storing, and reproducing audio materials differ substantially, reflecting diverse levels of digital literacy and varying institutional conditions. Our observations prompted a more systematic investigation, which we conducted within the framework of a master's thesis.

Aims: The aim of our study was to examine the ways in which music theory teachers access and employ audio materials within their pedagogical practice. Particular emphasis was placed on the use of contemporary streaming platforms, such as YouTube, Spotify, and Apple Music, as sources of musical recordings. The study also aimed to identify practices that could support the further development of music theory teaching.

Method: For the purposes of the study, a quantitative, non-experimental survey design based on an online questionnaire was employed. The study included 71 active music theory teachers from Slovenian music schools who participated on a voluntary basis.

Data were collected using 27 pre-structured questions, addressing three research questions:

RQ1: How often do music theory teachers use music recordings in class and how do they access them?

RQ2: For which intentions and in what ways do music theory teachers employ music recordings in class?

RQ3: What technical and organizational conditions for accessing digital audio materials on streaming platforms (YouTube, Spotify, Apple Music, etc.) are being provided for music theory teachers?

Results: The empirical study, conducted among music theory teachers in Slovenian music schools, indicated that music recordings are frequently integrated into classroom practice. Although most respondents have developed personal audio libraries over the course of their careers, nearly half do not use them regularly, instead relying on online searches for teaching materials. Recordings are most commonly accessed through the free version of YouTube, which offers convenient access to audiovisual content; however, such material is often inadequately supported by metadata and interrupted by advertisements. Schools generally do not provide institutional subscriptions to streaming platforms, despite considerable interest among teachers. The findings point to the need for more systematic institutional support to enable the effective use of digital music recordings in teaching practice.

Conclusions: In a time of rapid technological change, educators can no longer overlook the profound shifts in how music is accessed, experienced and distributed. At the same time, it is essential to preserve the core mission of music education: nurturing attentive, reflective, and musically literate listeners. Cultivating future audiences, capable of critical and meaningful listening in the age of ubiquitous digital music thus remains one of the central tasks of contemporary music pedagogy.

Keywords: Music Theory Teachers, Music Listening, Digital Music Recordings, Streaming Platforms

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The Latent Structure of the Serbian Translation of Krause et al.'s Scale for Assessing Well-Being Benefits of Music Participation

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Background: Given that engagement in music has been associated in the literature with both benefits and challenges to well-being (see Musgrave, 2023), a closer examination of the reasons and choice to pursue music professionally and persevere in that field (despite the many challenges) is needed. One promising avenue for gaining insight into the well-being outcomes of musical activities is a scale developed by Krause et al. (2018; MMWB Scale).

Aims: Examining the latent structure of the Serbian translation of the MMWB Scale.

Method: As part of a larger study on music students, a convenience sample of 210 students from the Faculty of Music in Belgrade (176 undergraduates; theoretical departments: 69, performing departments: 141), completed online the translated MMWB Scale (36 seven-point Likert-type items for self-reporting well-being gains of musical participation; Krause et al., 2018). In the original research by Krause et al. (2018), the scale's items were grouped into five factors (1: mood and coping [11 items], 2: esteem and worth [11 items], 3: socializing [five items], 4: cognitive [five items], 5: self-actualization [four items]), which were considered subscales.

Results: Principal components analysis on all 36 items (Varimax rotation; KMO = .93, x^2 [630] = 4644.78, $p < .001$) yielded a five-component solution that explained 60.14% of the variance. Items clustering on the first component (12 items – 11 from Krause et al.'s mood and coping factor; 18.93% of variance) suggest that practising music serves as a means of feeling better and handling everyday challenges. Seven items loading on the second component (five from original factor socializing) characterize music practice as a pathway to connectedness and belonging (12.27% of variance). That participation in musical activities can foster esteem and respect from both oneself and others is primarily reflected among eight items grouped on the third component (11.69%), six of which originally belonged to the esteem and worth factor (Krause et al., 2018). The last two extracted components – formed by the items of the original factors 2, 4 and 5 – each defined by four items, describe engaging in music as a space for personal development and creative expression (10.26%), as well as an activity that contributes to self-knowledge (6.99% of variance). One item failed to exhibit loading on any of the described components.

Conclusions: Partial confirmation of Krause et al.'s original solution in our sample suggests optimizing the instrument to achieve a more stable structure. In this regard, the next steps involve creating subscales more uniform in length, and further refining the items of the final two components.

Keywords: Music Participation, Well-Being, Measurement Scale, Latent Structure, Young Musicians

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Note: The data presented in this paper were collected for the first author's doctoral dissertation. While the dissertation reports numerical results from the principal component analysis, the obtained component solution reported in this paper has not been previously presented.

Relational Needs Satisfaction and Flow Experience Among Choral Singers

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Background: One of the most frequently examined constructs in music psychology is flow – a state of consciousness in which an individual (such as an instrumentalist or singer) is fully immersed in an activity and experiences intense enjoyment (Bakker, 2008). The central research question of this study concerns the nature of the flow experience when the focus shifts from the individual to the group level, necessitating the inclusion of interpersonal relationships as a critical component. Choral

singers were chosen as the research population, as Slovenia ranks among the highest in Europe for choral participation.

Aims: This study addresses a previously unexplored question of the relationship between the experience of flow and relational needs satisfaction at the group level, focusing on choral singers – a group of significant cultural importance in Slovenia. The findings will provide a foundational resource for researchers seeking to understand group dynamics within choirs and their connection to singers' subjective experiences of performance. Furthermore, the results have indirect practical implications for music professionals, such as choral conductors, by supporting the development of more supportive leadership and pedagogical approaches. Ultimately, this research provides an empirical basis for future investigations into factors associated with the quality of choral performance and the overall well-being of choral singers.

Method: Data will be collected via an online survey which, in addition to demographic questions, will include the Workplace Relational Needs Satisfaction Scale (W-RNSS; Hanc et al., 2024) and the WOrk-reLated Flow Inventory (WOLF; Bakker, 2008). Following conductors' consent, rehearsals will be visited to facilitate survey administration. The collected data will be processed and analysed. Appropriate correlation coefficients will then be calculated for the total scores of the RNSWS and WOLF, as well as for their respective subscales. Depending on the sample structure, demographic data will be used to conduct comparisons regarding potentially significant variables at both the interpersonal level (e.g. tenure of membership) and the intergroup level (e.g. comparisons between individual choirs).

Results: Based on research identifying perceived interconnectedness and interdependence in contexts analogous to choral singing as significant and motivating for the individual, we hypothesize that singers reporting a higher level of relational needs satisfaction will also demonstrate higher levels of flow experience.

Conclusions: By establishing the significance of the association between flow experience and relational needs satisfaction, we anticipate that this research will encourage further investigation into psychological constructs vital to the well-being of choral singers. Furthermore, we hope that these findings will motivate choral conductors and other professionals in the field of choral music to adopt pedagogical and leadership approaches that promote interpersonal connectedness among their ensemble members.

Keywords: Choral Singing, Relational Needs Satisfaction, Social Flow

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Maladaptive Perfectionism and Music Performance Anxiety in Music Students: The Mediating Role of Impostor Syndrome

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Background: Music performance anxiety, maladaptive perfectionism, and impostor syndrome are interrelated constructs, which may negatively affect music students' well-being and their progress in music (e.g. Kenny, 2016; Molnar & Sirois, 2015; Sims & Ryan, 2024). Some studies have indicated that maladaptive perfectionism and impostor syndrome play a significant role in explaining performance anxiety (e.g. Butković et al., 2021; Shafran et al., 2002; Sims and Ryan, 2024).

Aims: The purpose of this study was to examine the role of maladaptive perfectionism in predicting music performance anxiety among music students, focusing on the mediating role of impostor syndrome.

Method: A total of 275 music students studying at music academies in Slovenia and Austria completed an online survey comprising the maladaptive perfectionism subscales Doubts About Actions, Concern Over Mistakes, Parental Criticism, and Socially Prescribed Perfectionism, the short version of the Clance Impostor Phenomenon Scale, and a music performance anxiety scale, based on the Kenny Music Performance Anxiety Inventory – Revised. Given the ethnic diversity of the population, the survey was administered in English.

Results: The results of the path analysis showed that the maladaptive perfectionism dimension doubts about actions, characterized by self-doubt and performance uncertainty, positively predicts music performance anxiety both directly and indirectly through higher impostor syndrome – the doubts intensify impostor feelings of inadequacy, and those contribute to music performance anxiety. The maladaptive perfectionism dimension Concern Over Mistakes predicts music performance anxiety only indirectly through higher impostor syndrome – excessive worry about making mistakes and extremely high personal standards intensify impostor feelings, and those in turn contribute to increased music performance anxiety. The maladaptive perfectionism subscales Parental Criticism and Socially Prescribed Perfectionism did not significantly contribute to the model. Impostor syndrome demonstrated both partial and full mediation effects, thus serving as a significant mediator in the relationship between maladaptive perfectionism and music performance anxiety – impostor feelings significantly explain the effects of maladaptive perfectionism dimensions Doubts About Actions and Concern Over Mistakes on music performance anxiety.

Conclusions: These results can serve as guidelines for experts, music teachers, and music students, who develop or apply strategies for alleviating music performance anxiety, as they emphasize the importance of addressing Doubts About Actions, Concern Over Mistakes, and impostor syndrome as part of reducing music performance anxiety.

Keywords: Performance Anxiety, Impostor Phenomenon, Perfectionism, Music, Path Analysis

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Dynamics of Lived and Re-Lived Experiences in Self-Selected Emotionally Moving Musical Moments

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Background: First-person perspectives on lived experiences offer important insight into individuals' processes of meaning-making (e.g. Martin, 2019). Theories of auditory experience illustrate how attentional focus (or listening mode) in musical engagement might vary between and within individuals and differentially influence their musical experiences (e.g. Tuuri et al., 2007); however, there are very few empirical studies testing these, or exploring individuals' perspectives on musical experiences (Weining et al., 2025).

Aims: We aimed to understand how differences in attentional focus might shape musical meaning-making by examining first-person perspectives of musical experiences already imbued with rich, personal meanings. Additionally, we sought to investigate potential influences of demographic and musical background on differences in attentional focus and the ways in which individuals interpret and articulate their musical experiences.

Method: In an online survey, adult participants (N = 86, 39 M, 21 non-musicians, 44 amateurs, 12 professional performers, nine teachers) nominated up to three examples of music they found personally emotionally moving and gave free descriptions of the experiences the music gave rise to. We used data-driven thematic analysis to examine responses qualitatively and statistical analysis to explore demographic and musical background effects.

Results: In addition to multiple modes of listening supporting theories of auditory experience, participants' responses revealed a diversity in their conceptualization of the locus of musical experience as embodied, external, or a blurring of both, as well as dynamic perspectives of self (as protagonist or observer; in past, present, and future scenarios), others (performers, composers, real and imagined characters), temporality, and dimension. Meaning-making extended beyond the immediate experience of the music to taking stock of life events and gaining personal perspective. Statistical analyses found no significant effect of demographic or musical background on attentional focus or perspectives adopted; however, nominating three rather than fewer musical examples predicted the extent to which experiences were described as embodied and intrinsically generated, rather than externally attributed to the music alone.

Conclusions: Our findings contribute empirical evidence supporting theories of listening mode (e.g. Tuuri et al., 2007) in the context of emotionally moving musical experiences. Dynamic perspectives, the integration of self and others, and fuzzy conceptual boundaries between "experiential" and "observational" approaches may support existing scholarship that posits a "dual intentionality" of musical meaning-making whereby musical experience is seen to involve exploratory patterns that are oriented simultaneously towards the self and the external world (Høffding & Schiavio, 2021).

Keywords: Lived Experience, Attentional Focus, Listening Modes, Musical Meaning-Making

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Promoting Mindfulness in Primary Schools through Music

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Background: In recent years, there has been increasing attention to mental health and inner emotional experiences. Mindfulness, defined as living in the present moment without judgement, is an effective technique for emotion regulation, stress reduction, and enhancing cognitive attention (Hou, 2024). Through mindfulness training, individuals can learn to intentionally bring a specific perceptual experience to the forefront of their awareness (Baer, 2014). In learning environments with high expectations and social pressures, mindfulness has proved to be an effective intervention. Music-based mindfulness activities can help students cope with stress during the learning process, improve social relationships, and foster the development of emotional intelligence (Hou, 2024). A study by Crescentini et al. (2016) reports positive effects of music-based mindfulness on the psychological well-being of adolescents and children; however, the research base in this field remains limited.

Aims: The aim of the study is to gain insight into how familiar primary school teachers in Slovenia are with the concept of mindfulness, how well they understand it, and the extent to which they incorporate music-based mindfulness into the teaching and learning process.

Method: The research sample will consist of teachers from grades 1 to 9, as well as other professional staff involved in the educational process, employed in primary schools in Slovenia. An invitation to participate was sent to 50 principals, who will forward it to teachers within their institutions. Taking into account the expected dropout of participants, a final sample of 150 teachers is planned. Data will be collected using an online survey administered via the 1KA platform, which will remain active until mid-March 2026. The collected data will be analysed in March 2026 using JASP Statistics software. Descriptive and inferential statistical methods will be used.

Results: Based on the literature review and the formulated research questions, we expect teachers' understanding of mindfulness to be varied, and the integration of music-based mindfulness into teaching to be less systematic and less deliberately planned. We anticipate differences between groups of teachers, with those who have a musical education being more open to incorporating music-based mindfulness into teaching than those without a musical background. Most teachers are expected to recognize the positive effects of integrating music-based mindfulness into teaching and to express a high level of interest in professional development related to music-based mindfulness, as well as in pedagogical guidelines for incorporating music-based mindfulness into classroom practice.

Conclusions: The study will provide insight into primary school teachers' understanding of music-based mindfulness and how they incorporate it into the primary school teaching process.

Keywords: Teachers, Mindfulness, Pupils, Music, Primary School

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From Confidence to Anxiety: The Role of Self-Esteem in Stage Performance Anxiety Among North Macedonian Musicians of Different Genders

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Background: This study investigated the link between self-esteem and music performance anxiety within a North Macedonian sample of professional musicians from different fields. The research question emerged from our professional experience as active performing musicians and our direct exposure to the psychological challenges of stage performance.

Aims: The aim of this study was to examine the relationship between self-esteem and music performance anxiety among professional musicians in North Macedonia and to examine gender differences.

Method: An online questionnaire on self-esteem and performance anxiety was distributed to a sample (N = 124) of North Macedonian professional musicians, including choir members, orchestral players, and solo instrumentalists (violinists, violists, flutists, etc.). The assessment tools included the Rosenberg Self-Esteem Scale (RSES) and the Kenny Music Performance Anxiety Inventory (K-MPAI). Data were analysed using Pearson correlation and independent samples t-tests.

Results: The results indicated a statistically significant association between self-esteem and music performance anxiety in professional musicians from North Macedonia. Musicians with lower self-esteem showed higher levels of performance anxiety. No significant gender differences were observed.

Conclusions: Lower self-esteem is associated with higher music performance anxiety among professional musicians in North Macedonia, while no significant gender differences were observed. These findings emphasize the importance of self-esteem and its role in performance anxiety during musical stage performance. They highlight the relevance of psychological support in music education, teaching approaches, and individualized instruction for musicians. Further studies are needed in North Macedonia to examine other key psychological factors contributing to music performance anxiety.

Keywords: Self-Esteem, Music Performance Anxiety, Musicians, Stage Performance, North Macedonia

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International Musicians' Health Project

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Background: Musicians' health, both mental and physical, is becoming an increasingly well-defined area of research interest. Every year, more and more studies are appearing showing that musicians are an at-risk occupational group for mental health difficulties (Musgrave et al., 2025) and musculoskeletal symptoms (Stanhope et al., 2019). Most research has focused on assessing negative functioning, and to date, few studies have attempted to profile musicians' well-being using a positive framework. (Ascenso et al., 2018). According to our research, which formed the basis of a report presented at the 2024 conference in Zagreb, musicians are at high risk of psychological trauma and the development of occupational diseases, both in their educational and performing activities (Fyodorova et al., 2020). Based on 30 years of psychological counselling for performing musicians, as well as teaching and a number of studies that we conducted, we formulate our understanding of the fundamental needs and challenges of musicians, and our strategic proposals for systemic psychological and wellness support.

Aims: The main goals in our International Musicians' Health Project are first, to help musicians to improve onstage performance and self-regulation, relieve excess anxiety and symptoms of stress, and achieve greater performance stability; and second, to introduce preventative health-preservation strategies for musicians, tackling occupational physical and mental health challenges. Led by an interprofessional team of musicians and psychologists (from Croatia, Canada, Israel, Montenegro, Italy, and other nations) we have created a system of events and activities that will focus on unique, author-developed methods for physical and psychological health preservation, such as the Music and Health Festival (Montenegro, 2026), wellness retreats for musicians (Armenia, 2024, Italy, 2026), educational programmes, and online psychological counselling (2020–2026).

Method: This project is based on a community of specialists working at the intersection of highly professional music training, body and voice psychotherapy, and various psychological approaches, including the following:

- Feldenkrais Method
- Alexander Technique
- Bernstein's Movement Theory
- Voice Therapy
- Gestalt Therapy

- Psychosynthesis
- Strategic Short-Term Therapy
- Art Therapy
- Elements of Music Therapy

Results: This project is in the process of collecting and systematizing applied results. Self-reports from musicians who have completed various programmes in the project show evidence of the high effectiveness of combining body-oriented and psychological work to reduce symptoms of stage anxiety and muscle tension and pain.

Conclusions: The International Musicians' Health Project creates opportunities to improve musicians' health and reduce occupational risks to mental and physical functioning.

Keywords: Stress, Musicians' Health, Psychological Counselling, Support

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The Connection Between Personality Characteristics and the Emotions Experienced While Listening to Music

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Background: Music is an important part of our lives, accompanying us in various everyday situations. Listening to music evokes a variety of emotions, such as sadness, joy, elation, or calmness (Juslin & Västfjäll, 2008), and the emotions experienced can be influenced by an individual's personality. Emotional responses vary depending on the context and characteristics of the music (Eerola et al., 2016). We often use music to relax, wake up, pass the time, or recall memories, as well as to change or intensify emotions (Chamorro-Premuzic & Furnham, 2007). Personality has a significant influence on this experience – for example, more open individuals may listen to sad music to enjoy the feeling of sadness, while neurotic individuals may listen to it to regulate their mood (Chamorro-Premuzic & Furnham, 2007). In general, listening to music evokes different emotions, with extraversion, openness, and neuroticism standing out (e.g. Liljeström et al., 2012). People with higher neuroticism traits are more likely to experience sadness while listening to music excerpts,

while the correlation between extraversion and experienced sadness while listening to music seems to be negative (Vouskoski & Eerola, 2011). People who score higher on the openness trait are more likely to experience both negative and positive emotions while listening to music, compared to those who score lower on the openness trait (Barford & Smillie, 2016).

Aims: Although numerous studies confirm the links between personality and emotional responses to music (Kallinen & Ravaja, 2004), most focus on individual emotions within a categorical approach. The dimensional approach, which focuses on valence and arousal, is less commonly used, with the aspect of emotional arousal remaining particularly neglected in research. The purpose of the study was therefore to examine how personality traits relate to valence, arousal, and categories of emotions experienced while listening to music excerpts.

Method: The sample included 95 individuals (M_{age} = 21.01 years, *SD* = 3.62) who completed the Big Five Personality Questionnaire and listened to 47 music excerpts selected from the film music database compiled by Eerola and Vuoskoski (2011), reporting on valence, arousal, and categories of emotions experienced (with 17 examples of both basic and complex emotions as well as emotional states), using a coordinate system. We chose film music excerpts because this genre is created with the intention of evoking emotions in the individual, while at the same time presenting a relatively neutral stimulus to participants, at least in terms of the individual's familiarity with and musical preferences (Eerola & Vuoskoski, 2011).

Results: To get the results, we calculated correlations between variables and made regression models, using RStudio. We conducted a mixed-model regression analysis with valence as the criterion, personality traits as predictors, and the individual as a random intercept, thereby accounting for repeated measurements within each individual. Using Spearman's correlation coefficient, we calculated the correlation between openness and the number of emotions experienced. Considering the FDR correction, the results showed that more open individuals experienced music as more positive and experienced more diverse emotions. Additionally, we showed that this association is specific to calm musical passages. Other personality traits did not show significant correlations with valence or arousal.

Conclusions: Based on these and previous findings we can conclude that openness and the experience of music are closely related. Calm music, even sad music, can evoke pleasant feelings (Eerola et al., 2016) in more open individuals, as it offers the possibility of aesthetic enjoyment, emotional regulation, and reflection. Understanding individual differences in the emotional experience of music based on personality traits is important for using music as a tool to enhance psychological well-being – in everyday life and therapeutic or counselling contexts.

Keywords: Music, Emotional Responses, Personality Traits, Valence

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Trubadurček: Interactive Platform for Early Music Education

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Background: Digital technologies are becoming an increasingly prominent part of our everyday lives, and thus becoming difficult to ignore. Preschool children in particular are being exposed to and engaged with mobile phones and digital technologies at earlier ages, making it important to consider how we can take advantage of this, rather than use such devices purely for entertainment purposes. Music plays a significant role for the cognitive and social development of children, as it encourages the recognition of sound patterns and strengthens attention and auditory processing, which can also improve language and other cognitive abilities. Since the development of musical perception plays an important role in later education and development, the focus should be on developing technologies purposefully designed to achieve this (Pangeršič, 2024).

Aims: With that in mind, the Trubadurček mobile application was developed. The application is based on principles of Willems pedagogy, and it combines educational content with interactive digital technologies. The primary objective is to help preschool children learn music through engaging activities, such as games, singing, rhythmic patterns, and improvisation, as opposed to conventional theoretical learning. This encourages them to perceive music as an emotional experience, connects them with it on a deeper level and motivates them to continue with their education. The application's design is targeted towards preschool children, using familiar farm animals and a recurring cast of characters to capture their attention and support learning through a simple story.

Method: The application includes three sets of games: melodic, rhythmic and creative. These games were designed based on the principles of Willems pedagogy found in the literature and based on input given by music instructors. Throughout the gameplay, an avatar is always present to provide instructions, feedback and motivation. The challenges in games are designed to gradually increase in difficulty to prepare students for increasingly demanding tasks. The application is being evaluated by structured observation of children aged between four and six while they play the games, with a focus on identifying the areas where they encounter difficulties, such as motor coordination or challenges that they are unable to solve. These observations will then be used to improve the functionality of the application for this specific user demographic.

Results: The result of this work is a mobile application that incorporates all the aspects described above. While the application is fully functional, it is still under active development. It includes eight games in total but is built on a foundation of abstractions that simplify the addition of new games with new concepts. We will continue with testing, but our observations show that children respond positively to the application.

Conclusions: In conclusion, this application introduces music to children in a playful and accessible way while demonstrating that digital technologies could have positive impact on the development of musical perception in early childhood.

Keywords: Willems Pedagogy, Children's App, Interactive Games, Musical Perception, Music Education

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From Concert to Cubicle: Associations Between Recovery Experiences at Live Music Events and Next-Day Work Functioning

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Background: Work frequently involves sustained psychological effort, making effective recovery essential for maintaining well-being and performance. Recovery from work refers to the process through which strain reactions subside once job demands cease. Recovery experiences during off-job time (psychological detachment, relaxation, mastery, and control) are consistently linked to better next-day functioning, including higher engagement and lower fatigue (Sonnentag & Fritz, 2007; Sonnentag et al., 2022). However, most recovery research has examined broad categories of leisure, and leading reviews highlight the need to investigate specific real-world activities rather than treating leisure as a homogeneous domain (Sonnentag et al., 2022). Live music constitutes an emotionally rich and socially embedded leisure context: it elicits strong affective engagement and more robust neural responses than recorded music (Trost et al., 2024). Concert attendance has also been associated with higher subjective well-being and social connectedness at the population level (Rickard et al., 2025; Weinberg & Joseph, 2017). Together, these characteristics suggest that concerts may provide conditions conducive to recovery experiences and subsequent leisure-to-work spillover, yet this possibility has not been empirically tested.

Aims: The present study (to be presented in poster format) investigates whether live music attendance functions as a recovery episode and whether recovery experiences during a concert are associated with next-day work engagement and fatigue among non-musician employees. We focus on the four recovery experiences (detachment, relaxation, mastery, and control) as mechanisms of leisure-to-work spillover and explore the role of event-related contextual factors in shaping these relationships.

Method: We propose an event-based, next-day field design targeting employees who attended a live music event and returned to work the following day. Recovery experiences during the concert will be assessed using the Recovery Experience Questionnaire (REQ; Sonnentag & Fritz, 2007), adapted to the event context. The next day, participants will report work engagement using a state-adapted version of the Utrecht Work Engagement Scale–9 (UWES–9; Schaufeli, et al., 2006) and fatigue using brief day-level fatigue measures commonly applied in recovery research. Information regarding concert characteristics (e.g. genre, concert duration, and social context, such as alcohol intake) and relevant contextual variables (e.g. sleep duration, working hours) will be collected as covariates. Associations between recovery experiences and next-day work outcomes will be examined using regression-based analyses.

Results: We hypothesize that stronger recovery experiences during live music attendance will be positively associated with next-day work engagement and negatively associated with next-day fatigue. In line with prior day-level recovery findings, psychological detachment and relaxation are expected to relate particularly to lower fatigue, whereas mastery may show stronger associations with work engagement.

Conclusions: By situating recovery processes within a specific cultural leisure episode – listening to live music – this study extends recovery theory beyond generic leisure and contributes to leisure-to-work spillover research. The findings will provide insight into whether emotionally immersive cultural experiences are associated with short-term work functioning, thereby bridging organizational psychology and the psychology of music.

Keywords: Recovery Experiences, Live Music, Work Engagement, Fatigue, Leisure-to-Work Spillover

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Perception of Emotion in Classical Singers' Audio, Body Language, and Facial Expressions

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Background: Music-producing and ancillary movements both contain emotional body language. However, classical musicians are often trained to exhibit minimal movements (Dahl & Friberg, 2007). Body language can still be informative of a classical instrumentalist's intent (Dahl & Friberg, 2007;

Vuoskoski et al., 2014), but this has not been well-researched for singers. Researchers have found singers' facial expressions dominate audio emotions (Lange et al., 2022; Thompson et al., 2008), and bimodal presentations are interpreted more accurately than unimodal (audio/video only; Miksza et al., 2024).

Aims: We hypothesized emotions would be perceived more accurately with body language visible compared to audio-only, and more accurately still with facial expressions visible. We also expected emotions would be perceived more accurately in bimodal clips (with or without facial expressions) than unimodal, but that in incongruent clips the video intent would override the audio.

Method:
Study 1: Recordings of a classical singer performing with angry, happy, or sad intent were edited into clips with or without audio, and with either no video, video showing body language only, or full video showing facial expressions. Participants rated how much anger, happiness, and sadness they perceived in each clip.
Study 2: The above recordings were either left intact (bimodal congruent) or edited to show audio/video only (unimodal) or audio of one intent paired with video of another intent (bimodal incongruent). Facial expressions were visible in all videos. Participants gave the same emotion perception ratings as in Study 1.

Results:
Study 1: Body-language-only video results were mixed. For happiness and sadness, all presentations were accurately perceived but video-only and the bimodal combination were not more accurate than audio-only. Anger was not accurately perceived at all. In full-video conditions, video-only clips were all rated more accurately than audio-only, and the bimodal combination was only better for happiness.
Study 2: Unimodal video-only clips were more accurately perceived than audio-only. Bimodal congruent conditions were not more accurately perceived than unimodal. In bimodal incongruent conditions, participants' ratings matched the video intent for all but one combination.

Conclusions: A classical singer's body language is only minimally informative, though facial expressions are more informative than audio, especially when video and audio contradict. This demonstrates the importance of visual presentation, especially facial expressions, in a medium that encourages stillness.

Keywords: Singing, Emotions, Classical, Communication, Perception

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Music, Prosociality, and Prejudice: Conditions and Psychological Mechanisms

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Background: Music is a ubiquitous feature of everyday life. People spend an estimated 10–20% of their waking time listening to music (Rentfrow, 2012). Evolutionary perspectives emphasize music's integrative and communicative functions, highlighting its potential role in social bonding and coordination (Brown, 2000). Consistent with these accounts, empirical research indicates that both passive listening and active engagement in music can strengthen social bonds, increase interpersonal liking, promote cooperation and helping (Good & Russo, 2016; Grimani et al., 2023), and may also reduce prejudice (Neto et al., 2016). However, the role of music in shaping prosociality and intergroup attitudes remains underexplored, particularly with regard to its underlying mechanisms and boundary conditions.

Aims: The aim of our project is to examine whether, how, and under what conditions listening to music increases prosociality and reduces prejudice toward members of outgroups. The project seeks to identify both contextual moderators and psychological mediators that explain the social effects of music.

Method: To ensure strict experimental control over musical stimuli, a set of six original musical pieces have been created in collaboration with a professional producer and musicians. All compositions share the same melody, tempo, metre, and structural framework, differing only in musical genre (pop or alternative, rock, folk from a foreign culture) and the presence and type of lyrics (no lyrics, incomprehensible lyrics, prosocial lyrics, genre-typical lyrics). Prior to the main experiments, a pretest has been conducted to compare the newly composed pieces with moderately popular existing songs in terms of perceived quality and attractiveness. Across four experimental studies using between-subjects designs, participants will be randomly assigned to listen to selected versions of the stimuli. The project hypothesizes that social effects will be stronger for songs with lyrics than for instrumental versions, and particularly pronounced for prosocial lyrics in relation to prosocial outcomes, though not necessarily for prejudice reduction. It is further expected that pop or alternative music will produce the strongest effects, whereas folk music from a foreign culture will yield the weakest. Additionally, effects are expected to be amplified when listening is accompanied by greater cognitive engagement (attention) and bodily engagement (synchrony). Potential mediators will be assessed in all studies, including mood, music-induced emotions, and state empathy. It is hypothesized that music enhances empathy and elicits emotions associated with being moved, such as awe, transcendence, and tenderness, which in turn mediate prosocial outcomes and prejudice reduction. Reduced tension and improved mood are also expected to facilitate prosociality and prejudice reduction. Data will be analysed using linear models, including factorial analyses of variance and mediation analyses.

Results: The project is currently in the stimulus pretesting phase. Empirical results from the main experiments are forthcoming this year.

Conclusions: This project aims to clarify the psychological mechanisms and contextual factors through which music may shape prosocial behaviour and intergroup attitudes. By combining tightly controlled original stimuli with experimental designs and mediation analyses, the research seeks to advance theoretical understanding of music's social functions and to identify conditions under which music may foster more positive intergroup relations.

Keywords: Music Listening, Prejudice, Prosocial Behaviour, Empathy, Synchrony

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Professor Support, Self-Efficacy, and Musical Performance Anxiety

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Background: In the following study, the focus was on exploring the relationship between the variables of social support from the professor, specifically reassurance of worth, and the music performance anxiety of the music student, specifically personal concerns about the performance. We examined both the direct and the indirect association through self-compassion and self-efficacy, two variables previously identified as relevant in this context.

Aims: The aim of the study was to examine whether social support from the professor helps to decrease performance anxiety, both directly and indirectly through enhancing self-compassion and self-efficacy.

Method: We tested our hypotheses on a sample of 112 Slovenian music students. The participants were between 18 and 34 years old. We collected the data using online self-assessment questionnaire tool that contained established items with which we examined the observed variables. The online questionnaire was posted online (social media, specific Facebook groups, Reddit, through mailing lists of faculties). The hypotheses were tested using path analysis.

Results: The findings of the study show that social support has no direct effect on the expression of performance anxiety. However, we found an indirect effect through self-efficacy, as social support from the professor increases feelings of self-efficacy, which further decreases the expression of performance anxiety. Social support did not predict self-compassion, but self-compassion did predict lower performance anxiety, both directly and indirectly through higher self-efficacy.

Conclusions: The findings suggest that support from the professor is particularly important for enhancing feelings of self-efficacy in the individual, and these are further important for reducing performance anxiety. Even if support does not increase feelings of self-compassion, this trait is important in enhancing self-efficacy and reduces executive anxiety both independently and through self-efficacy. The findings provide a good starting point for further research on the relationship between social support and music performance anxiety and can also serve as guideline for teachers in providing social support, introducing additional study activities towards enhancing self-compassion and self-efficacy in musical performance in order to manage music performance anxiety. In the poster we will therefore emphasize the variable of self-efficacy and how it is related with the others in our research model.

Keywords: Music Performance Anxiety, Social Support, Self-Compassion, Self-Efficacy, Musical Performing

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Observing Well-Being in a Paediatric Waiting Room: Baseline Findings Informing the Development of Music Interventions

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Background: Music is frequently used in various paediatric settings as a low-cost, non-pharmacological intervention to improve vital signs, mood, and overall well-being in children (González-Martín-Moreno et al., 2021; Stegemann et al., 2019). Maintaining a high level of well-being in healthcare environments is crucial, as it reduces stress and anxiety, which in the long term contributes to better cooperation of the child during diagnostic and therapeutic procedures.

Aims: The paediatric environment is often emotionally challenging for children and their parents. They are frequently affected by fear of the unknown, doctors, injections, procedures, and similar experiences (Köle & Yildiz, 2025). While the impact of music during hospitalization (Johnson et al., 2021) has been relatively well studied, the issue of waiting in the paediatric clinic of a health centre remains underexplored. The aim of this study is to explore children's well-being in the paediatric waiting-room environment and identify opportunities for developing music interventions that respond to the needs and experiences observed within that setting.

Method: The study was based on systematic observation using the Leuven Well-Being Scale in the paediatric waiting room of the Medvode Health Centre. Observations were conducted by four students over the course of three working days, during which they assessed the children's well-being on a scale from 1 to 5. The main criteria for evaluating children's well-being were the child's verbal and non-verbal communication, interaction with the environment, and relationship with the parent. If these criteria were positive (e.g. the child talked with the parent, read books in the waiting room, explored the space), the scores on the scale were higher; if the child cried, did not explore the waiting room, and showed visible signs of fear and anxiety, the scores were lower. A total of 45 children were included in the observations, and these were selected randomly, without prior arrangement. Data on gender, age, health status, and parental accompaniment were recorded

during the observations. For the purposes of this study, informed consent was prepared for parents, specifying the timing of the observations, the observers, the data being collected, and the purpose of the observations. Parents signed the consent forms and were informed about the observation procedures during the specified timeframe.

Results: The mean well-being score among the 45 observed children was 3.5 out of 5. The mean score was 3.2 for boys and 3.7 for girls. These findings provide an initial description of children's well-being while waiting for paediatric consultations and indicate variability in how children experience the waiting-room environment.

Conclusions: This baseline assessment provides a foundation that helps us understand what we could expect from parents and children, and thus develop music-based activities tailored to the needs of children and families in the paediatric waiting room. The findings will guide the next phase of the study, which will introduce and evaluate interventions intended to support emotional calm, meaningful engagement, and a more positive waiting experience with music activities.

Keywords: Music Intervention, Waiting Room, Children, Well-Being, Paediatrics

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Interpretative Processes in Children's Choirs

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Background: Musical interpretation in children's choirs goes beyond technical execution to include meaning-making, expressive engagement, and aesthetic experience, all shaped by pedagogical and social contexts. From a psychological perspective, interpretation can be understood as an individual–collective process, involving both singers' personal emotional engagement with musical material and the co-construction of shared expressive meaning within the choir (Corbalán et al., 2019; Krüger Bridge, 2025). Studies emphasize the central role of the conductor as both interpreter and educator, with interpretative outcomes arising through rehearsal practices, pedagogical strategies, and conductor–singer interaction (Corbalán et al., 2019; Verster et al., 2009). Although children's choirs are recognized as a distinct vocal and pedagogical context, existing research addresses developmental, technical, and experiential aspects in a fragmented way (Rucsanda, 2021; Verster et al., 2009). To address this fragmentation, the present study conducts a systematic review of research on musical interpretation in children's choirs, focusing on how interpretation is conceptualized, incorporated into choir rehearsals, and experienced.

Aims: This theoretical review systematically examines research on musical interpretation in children's choirs. It focuses on pedagogical and conducting approaches in rehearsal settings, including the role of the conductor, rehearsal strategies, and the consideration of children's developmental and experiential characteristics. Relevant literature was identified primarily through searches of the Web of Science, SAGE Journals, and ResearchGate databases.

Main contribution: By integrating studies from various disciplinary backgrounds, the review identifies recurring themes in how conductors support interpretative development through rehearsal strategies, instructional practices, and interactions with young singers. The analysis highlights differing conceptions of interpretation, ranging from conductor-led models to more participatory and experience-oriented approaches, as well as variations in how children's developmental and experiential characteristics are considered. By organizing these approaches into a coherent analytical framework, the review clarifies commonalities, differences, and gaps in current research on interpretative work in children's choral contexts.

Implications: From a research perspective, the review highlights the need for more integrated and conceptually coherent investigations of musical interpretation in children's choirs. In particular, it emphasizes the value of research that more explicitly addresses children's interpretative experiences, links pedagogical approaches to developmental processes, and connects artistic, pedagogical, and experiential perspectives. By clarifying existing approaches and identifying gaps, the review provides a foundation for future studies aiming to advance understanding of interpretative work in children's choral contexts.

Keywords: Children's Choir, Musical Interpretation, Choral Pedagogy, Theoretical Review

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Lullabies and Children's Psychological Well-Being in Paediatric Hospitals: A PRISMA Systematic Review

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Background: Lullabies represent a developmentally grounded form of early musical interaction traditionally used to soothe distress, regulate arousal, and foster caregiver–child bonding. Characterized by repetitive melodic contours, predictable rhythmic patterns, gentle dynamics, and emotionally attuned vocal expression, lullabies are closely aligned with infants' and young children's neurophysiological regulatory capacities. Their structural simplicity and affective qualities support calming, sleep induction, and emotional containment, making them particularly relevant in contexts of heightened vulnerability (Bainbridge et al., 2021; Lense et al., 2022). In hospital environments, children are frequently exposed to unfamiliar sensory stimuli, invasive procedures, separation from

caregivers, and disruptions of daily routines. Such experiences may contribute to increased anxiety, sleep disturbances, emotional dysregulation, and diminished feelings of safety (Longhi & Pickett, 2008). Within this context, lullabies may function as an accessible, non-pharmacological regulatory resource. Their predictable and soothing acoustic features can introduce auditory stability into an otherwise unpredictable environment, while live or caregiver-delivered singing may help with parent-child bonding and enhance perceived emotional safety.

Aims: The aim of this theoretical review is to systematically examine and synthesize existing empirical evidence on the psychological effects of lullabies on children's well-being in hospital settings, following PRISMA guidelines (Page et al., 2021). Specifically, the review addresses the following research questions: (1) What psychological effects of lullabies on children's well-being are reported in the scientific literature? and (2) How are lullabies implemented in paediatric hospitals or clinical settings?

Main contribution: This review synthesizes empirical findings on the psychological effects of lullabies in paediatric hospital settings, with most studies conducted in neonatal intensive care units (NICU). Across the included research, lullaby interventions – delivered live or in recorded form, and sung by caregivers (most commonly mothers), jointly with music therapists, or performed by musicians – were consistently associated with improved behavioural regulation. Several studies reported reductions in crying, agitation, and observable distress, alongside increased time spent in quiet alert or sleep states following lullaby exposure. There was moderate agreement among authors regarding these short-term calming effects. Physiological indicators of stress regulation were also frequently examined. Improvements in oxygen saturation were reported in multiple studies, suggesting enhanced physiological stability during or after lullaby interventions. Findings related to heart rate were less consistent, with some studies noting stabilization while others found no significant changes. Evidence for feeding-related outcomes, including weight gain, was mixed; although positive trends were observed in some cases, statistical significance was not uniformly achieved. Additionally, studies involving caregiver-delivered lullabies reported reductions in maternal anxiety and improvements in perceived bonding and synchrony.

Implications: The findings indicate that lullabies may serve as a developmentally sensitive and low-cost intervention for supporting emotional regulation and relational stability in hospitalized infants, particularly in neonatal settings. At the same time, the predominance of NICU-based studies and considerable methodological heterogeneity limit the generalizability of current evidence to broader paediatric hospital populations. These results underscore the need for more rigorously designed studies and for expanded research beyond neonatal intensive care to determine whether similar psychological benefits can be observed across diverse paediatric clinical contexts.

Keywords: Lullabies, Health, Well-Being, Children, Paediatric Hospitals

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A Multilevel Management Model of Performance Anxiety in Music Based on a Neuroscience Framework

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Background: Music performance anxiety (MPA) is a common and distressing condition affecting musicians at all levels, with estimated prevalence rates ranging from 15% to 60%. Traditional interventions, such as cognitive behavioural therapy and beta-blockers, have shown limited effectiveness or present practical constraints. Although understanding of the neurobiological foundations of MPA, including amygdala hyperactivation and prefrontal cortex dysfunction, has increased, an integrated and theoretically driven management model is still lacking.

Aims: This paper proposes a neuroscience-informed multilevel model for the management of MPA. The model aims to:

- translate existing neuroscientific evidence into actionable intervention strategies;
- provide a hierarchical structure for addressing MPA at neurophysiological, cognitive, and behavioural levels.

Method: The model synthesizes evidence from functional neuroimaging, psychophysiology, and intervention research, explicitly linking neural mechanisms with practical techniques. It consists of three levels, each associated with specific neural targets:

- Neurophysiological level: Bottom-up interventions target amygdala-driven threat responses, including hyperarousal and autonomic dysregulation. Strategies include slow breathing to regulate vagal tone, progressive muscle relaxation, and biofeedback-assisted regulation.
- Cognitive level: Top-down strategies address prefrontal cortex-mediated appraisal processes, including catastrophizing and self-focused attention. Interventions include cognitive restructuring, acceptance-based techniques, and attentional focus training to reduce threat-related interoceptive sensitivity.
- Behavioural level: Exposure-based approaches are used to modify conditioned avoidance and performance routines. Strategies include simulated performance exposure, video self-modelling, and graded real-life performance challenges.

Results: Unlike single-level approaches, this model recognizes that MPA emerges from interactions across multiple levels and therefore requires coordinated multilevel management. It links neurophysiological, cognitive, and behavioural mechanisms with specific intervention techniques. The model proposes that effective MPA management should prioritize interventions grounded in neurophysiological regulation, followed by the gradual or integrated implementation of cognitive and behavioural strategies.

Conclusions: The model provides a clinically applicable framework for musicians, educators, and performance coaches. Future research should validate the model through randomized controlled trials and investigate individual-difference factors that may influence its effectiveness, such as trait anxiety and level of expertise.

Keywords: Music Performance Anxiety, Neuroscience, Multilevel Model, Intervention, Emotion Regulation

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15:30 – 16:45

Parallel oral sessions 5 – 8

Breda Oblak Hall, 3rd Floor

Oral session 5: Music Potential and Development

Chair: Petra Brdnik Juhart

Self-Determination Theory as a Framework for a Pre-Dropout Intervention in Music Education

Ana Kavčič Pucihar[1], Katarina Zadnik[1], Brina Zamrnik[2], Petja Plamberger[3]
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Background: This presentation is based on our exploratory study (Kavčič Pucihar et al., 2026), where we examined an intervention aimed at enhancing music school pupils' motivation by supporting their basic psychological needs in the ongoing learning process and explored its potential relevance for dropout prevention. Drawing on prior research on motivation and dropout in Slovenian music schools (Habe et al., 2024; Kavčič Pucihar et al., 2023; Kavčič Pucihar et al., 2024), we developed an intervention based on the self-determination theory (Ryan & Deci, 2002). Three areas previously identified as leading to dropout (Kavčič Pucihar et al., 2024) were addressed: individual differences, challenges with music theory and solfège, and limited peer interaction.

Aims: We designed seven workshops addressing body posture and motor skills (Fit Musician), music learning and instrument practice (Connected; The Great Practitioner!), and understanding of music theory and solfège (I Can Master Music!; Super Music Theory!). Workshops were created to support relatedness and peer interaction (Together Is Cute) and improvisation skills (The Impro League). Fifty-five pupils at a Slovenian public music school, some identified as being at elevated risk of dropout, participated in the workshops 8 to 10 times. Workshops ran mostly alongside the regular curriculum and were led by University of Ljubljana students under the guidance of teaching and work mentors.

Method: We used a mixed-methods research design. Quantitative data were collected from pupils (N = 43, mean age = 10 years) using a combination of two adapted motivational questionnaires (Comeau et al., 2019; Standage et al., 2005), administered before and after the intervention. Qualitative data were collected through focus group interviews with instrumental music and music theory teachers (N = 13). The teachers were asked to describe any possible observed motivational changes in their pupils during their instrument and theory classes in the music school.

Results: We conducted descriptive statistical analyses of the following variables, pre- and post-intervention: intrinsic motivation, amotivation, autonomy, competence, and relatedness in music instrument and music theory lessons. Quantitative analyses showed a statistically significant increase in pupils' perceived autonomy during theory lessons (p = .02) and a statistically significant decrease in perceived competence in instrumental performance (p < .001). In the qualitative part of the study, we manually coded the transcripts of the focus group interviews, ensuring inter-coder reliability. We assessed the placement of the themes within existing theoretical constructs. The focus group data analysis with instrumental and music theory teachers yielded seven themes: autonomy, relatedness, competence, amotivation, attitude change, enthusiasm, and increased motivation due to appealing repertoire. Findings revealed shifts in pupils' motivation, including changes in relatedness,

competence, and positive attitudes toward learning. Smaller changes were observed in autonomy, enthusiasm, and repertoire-driven motivation in instrumental lessons. Theory teachers reported fewer changes, most notably a more positive attitude toward music theory.

Conclusions: Considering the limitations of our study, these preliminary findings suggest that structured interventions, such as student–mentor workshops embedded within the educational process, may relate to pupils' core motivational processes and warrant further investigation as a potential approach to dropout mitigation in music education.

Keywords: Music School, Instrumental Music Education, Intervention, Motivation, SDT

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Self-Assessment During the Development of Musical Skills in the University Classroom

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Background: A considerable amount of research attests to the beneficial effect of using self-assessment to improve learning outcomes, as shown in a large review study by Andrade (2019). On the other hand, the ability of students to accurately assess their skills has been put in question by some (Chevalier, 2009), with regards to both underestimation (Öhrstedt & Lindfors, 2019) and overestimation (León et al., 2023, Chevalier, 2009) This paper presents a case study on the topic of self-assessment as it relates to university courses in ear training and music literacy, focusing on the relationship between developing musical skills and the perception of difficulty of musical tasks in adult students.

Aims: The main aim of the study is to study the relationship between musical skills and the capacity for self-assessment regarding difficulty perception for a group of Spanish musicology students as well as to study the changes to this relationship over time. Furthermore, the possible impact of previous musical experience, initial competency level and different teaching strategies on both academic results and difficulty of perception are considered.

Method: This study analysed specific musical capabilities (related to aural skills and musical literacy) in adult university students enrolled in the first year of a bachelor's programme in Musicology (N = 47) and their development over ten months (September 2024 to June 2025), looking at their qualifications on all written exam questions during the year. These results were then compared to self-assessment data regarding perceived difficulty collected at all four exams during the year and to data on previous musical experience and initial competency levels.

Results: Exam results and perceived difficulty were partially correlated (negatively) and the correlation was strengthened over time, with a higher negative correlation in June. The change in average exam qualification (68.5% correct answers for the October exam, 56.7% for the June exam), correlated perfectly with the change in perceived difficulty of the exam (59% vs 68.79%). The correlation between previous musical experience as well as initial diagnostic evaluations and exam results diminished between the October exam and the June exam.

Conclusions: These results show improvement in the students' ability to assess the difficulty of exam items over time, while also highlighting the possibility of compensating for initial disadvantage (no previous experience) through greater improvement in skill achievement during the year. This research has clear implications for music-educational settings, especially regarding college education, and for the field of self-assessment in general.

Keywords: Self-Assessment, Musical Skills, College Students, Music Perception

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Sounding Myself: Musical Creativity of Young People in the Digital Age

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Background: The digital era has transformed musical creativity, enabling individuals to engage in music production with or without formal training and fostering autodidactic practices among younger generations, where student identity and creative agency are central (Pierard & Lines, 2022). Tools such as digital audio workstations, music apps, and online platforms have democratized music-making (Chambers, 2021), reshaping how young people create music (Cremata & Powell, 2017). From a constructivist perspective, self-directed learning allows young musicians to use online resources to develop skills and musical identities (Pierard & Lines, 2022; Chambers, 2021). The

widespread availability of tutorials and music software further supports interest-driven learning (Prestridge et al., 2021). These changes reshape musical creativity in education by bridging formal and informal learning contexts. Through digital tools, educators support musical development while fostering cognitive, social and digital skills (Walzer, 2020).

Aims: The aim of this study is to gain a deeper understanding of how engagement in a digital musical environment fosters musical creativity, as well as how young people develop self-directed learning strategies.

Method: A qualitative study based on semi-structured interviews was conducted with two male participants of different ages: a late adolescent (aged 18) and an adult (aged 27).

Results: The adolescent drew musical idioms from video game soundtracks, advancing through keyboard and guitar practice to spontaneous improvisation. The adult started experimenting with beat creation in adolescence and, after a hiatus, resumed musical activity by composing, writing lyrics and performing original songs independently. Both participants used music technology to explore, develop, and generate musical ideas and subsequently to evaluate and reflect on their own work. Both participants developed a growing motivation to actively listen to and engage with works of classical music. The adolescent, in particular, also cultivated an interest in exploring composers' biographies and independently shaping his musical preferences. Over time, the adult developed collaborations with professional music producers, thereby enhancing his collaborative creativity in music production. He also emphasized the importance of his musical intuition and the experience of a state of flow during the work on his first album.

Conclusions: This study offers a timely and conceptually grounded exploration of self-directed musical creativity in digital environments, and the rich qualitative insights provide valuable illustrations of individual developmental trajectories. However, the extremely limited sample size (N = 2) significantly constrains the analytical depth and the broader interpretive claims that can be drawn. A larger and more diverse participant pool would also enable more significant comparisons and support stronger theoretical contributions.

Keywords: Musical Creativity, Digital Music Production, Autodidactic Learning, Non-Formal Music Education, Collaborative Music Production

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And Where Is the Creativity? A Qualitative Analysis of Teachers' Perspectives on Creative Processes in Music

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Background: Creativity is defined as the ability to produce original and appropriate works (Mayer, 1999). In music, it encompasses productive (composition, improvisation), performative, and receptive aspects (Kozbelt, 2020), though research predominantly focuses on production. Recognized as a music-specific skill (McPherson, 1996), creativity manifests through interpretation, improvisation, and composition (Hallam, 2006). However, Long et al. (2022) identified a prevalence of domain-general instruments, such as divergent thinking tests, which emphasize cognitive processes while neglecting social and affective dimensions. Consequently, music education research has relied heavily on subjective measures like consensual assessment, where evaluators apply implicit criteria to judge aesthetic, technical, and structural qualities.

Aims: This research explores perceptions of creativity in the context of music education and was conducted through a survey of respondents' opinions in focus groups.

Method: The research is part of a larger study on a sample ($N = 36$) of music teachers at all three levels of education, in general and specialized primary and secondary schools, and higher education music institutions. Most respondents have work experience across multiple educational levels and in different subjects. The interviews took place in seven focus groups via an online platform for virtual meetings. The collected data were processed using the inductive thematic text analysis method, which identifies and analyses patterns in qualitative data to uncover prominent and recurring themes.

Results: Thematic analysis identified five themes: perception, recognition, encouragement, limitations, and assessment of creativity. Respondents view creativity as an individual experience best recognized by other creative individuals, characterized by a striving for "absolute beauty", spiritual freedom, and musician autonomy. While considered inherent in childhood, participants noted that formal schooling often fails to nurture this potential. Effective support requires balancing technical skills – as a lack of technique can hinder expression – with the development of critical thinking and autonomy. Furthermore, fostering creativity involves encouraging the courage to challenge existing conceptual frameworks. Ultimately, respondents concluded that because creativity is difficult to measure and cannot be taught, it should not be subject to formal assessment in music education

Conclusions: The research provides insight into teachers' views on the role of creativity in music education, identifies shortcomings in attitudes towards creative students, and serves as a starting point for developing more effective teaching methods and further research in this area.

Keywords: Music Education, Creativity, Evaluation, Teacher Perception, Focus Groups

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Marijan Lipovšek Hall, 1st Floor

Oral session 6: Music Performance

Chair: Blanka Bogunović

Critical Issues in Music Higher Education (HE) Pedagogy and Policy: An Exploration of Music Performance Anxiety (MPA) in HE Vocal Students

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Background: Music performance anxiety (MPA) is a critical issue that significantly affects the performance quality, mental health and well-being, and professional development of higher education (HE) music students. While existing research on MPA has largely concentrated on therapeutic interventions, comparatively little attention has been paid to the influence of pedagogical practices on the shaping of MPA, and even less to the impact of institutional policies and the broader institutional system. HE is a crucial stage for music performance students. Inclusive and supportive pedagogical practices can help build healthy and confident performers, whereas counterproductive practices may lead to the development of MPA and compromise students' mental health (Jarvis et al., 2011). Policy arrangements within HE institutions, such as mental health support policies and teacher training and management systems, may also influence teachers' pedagogical choices.

Aims: Accordingly, this study aims to identify the pedagogical and policy-related factors that may influence MPA among HE vocal students, and to examine how these factors shape their experiences.

Method: This research is conducted under the critical realism research paradigm and adopts a qualitative research approach. The study design is informed by Bronfenbrenner's ecological systems theory. Semi-structured interviews were conducted with 18 participants, including six vocal tutors from HE institutions in the UK and China, along with two students per tutor. Data are being analysed using interpretative phenomenological analysis (IPA), which facilitates an in-depth exploration of how participants make sense of experiences related to MPA in higher education.

Results: The study is undergoing the final round of data analysis; to avoid premature conclusions, this abstract does not present definitive results or conclusions. However, preliminary findings are available. These indicate that a range of pedagogical and policy-related factors, negative, positive, and mixed, may shape HE vocal students' experiences of MPA. In terms of pedagogical practices, ten factors were identified that may exacerbate students' MPA, such as frequent interruptions during singing, overly flowery teaching language, unsuitable repertoire choices, and negatively framed feedback. In contrast, several teaching practices were reported to alleviate MPA, such as encouraging students' unique voices, adaptive teaching style, and emotional support. Policy-related factors also appear influential. Ten factors were identified as potentially negatively affecting students' MPA, such as curriculum designs misaligned with the job market, perceived inequities in departmental opportunity distribution, and questioning of the marking rubric. Conversely, factors that may help build an MPA-supportive environment were also reported, such as leadership efforts to foster a supportive departmental atmosphere and effective mental health support provision.

Conclusions: The full analysis and conclusions will be finalized in the months leading up to the conference and presented as IPA themes. Preliminary findings suggest that pedagogical practices play a key role in shaping students' MPA, while broader HE policies and institutional cultures influence both teachers' pedagogical choices and students' experiences and management of MPA. This study

thus understands MPA not simply as an individual psychological issue, but as a complex phenomenon shaped by the interaction between pedagogical practice and the wider HE institutional context.

Keywords: Music Performance Anxiety, Pedagogical Practice, Policy, Higher Education, Vocal Music

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Rethinking Music Performance Anxiety: Improvisation, Musical Identity, and Evaluative Performance Contexts

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Background: Music performance anxiety (MPA) has traditionally been conceptualized as an individual psychological problem associated with maladaptive cognitions, trait vulnerability, and low self-efficacy (Kenny, 2011). Consequently, much research has focused on strategies for anxiety reduction within established performance structures, particularly in Western classical music. However, emerging work in music psychology and music education suggests that musicians' experiences of anxiety are also shaped by broader musical identities and the social–evaluative norms embedded in performance contexts (Hargreaves et al., 2017; MacDonald & Saarikallio, 2022). Improvisational musical practices, often characterized by collaborative interaction and more distributed forms of agency, may offer a useful lens for reconsidering how performance contexts shape the experience of MPA.

Aims: Building on emerging sociocultural and identity-based perspectives on music performance anxiety (MPA), this paper explores how improvisational musical practices may help illuminate the mechanisms through which evaluative performance contexts shape musicians' experiences of anxiety. Rather than asking whether improvisation simply reduces anxiety, the paper examines how different musical environments organize evaluation, participation, and legitimacy in ways that influence how anxiety is experienced, interpreted, and negotiated by musicians.

Main contribution: Drawing on interdisciplinary literature from MPA research, musical identity studies, and improvisation research, this paper proposes a conceptual perspective for understanding how evaluative structures, identity positioning, and forms of musical participation may interact within performance settings. Improvisational contexts are discussed as musical spaces that may redistribute evaluative authority, potentially shifting participation from primarily judgement-oriented models towards more reciprocal and process-oriented forms of engagement. Such shifts may help illuminate how musicians experience exposure, legitimacy, vulnerability, and belonging within musical activity.

The paper highlights three interrelated dimensions that may shape experiences of MPA in context:
(1) the organization of evaluation and power within performance settings;
(2) musicians' embodied sense of musical identity and legitimacy; and
(3) the degree of individual exposure versus shared participation in musical interaction.

By integrating these strands, the paper proposes that MPA may be understood not solely as an internal psychological state, but also as an experience emerging through dynamic relationships between identity, context, evaluation, and musical practice.

Implications: Examining MPA in relation to musical identity and evaluative performance structures may open new directions for research in music psychology and music education. Improvisational practices may offer a useful lens through which to explore alternative forms of musical participation, collaboration, and evaluation within and alongside classical performance traditions. This theoretical paper forms part of an ongoing doctoral project exploring music performance anxiety, musical identity, and improvisational practice.

Keywords: Music Performance Anxiety, Improvisation, Musical Identity, Performance Context, Participation

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How Listening to Grieg and Shostakovich Affects Adolescents' Feelings During Music Lessons

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Background: Music-evoked feelings have rarely been examined with adolescents in the school context. When listening to music is included in lessons in grammar schools in Croatia, it is predominantly analytical. Experiential listening, with an emphasis on experiencing feelings, is rarely implemented. To enrich this standard approach to listening to music, cognitive-emotional listening was introduced. It broadens the contextualization of the music, uses various activities to encourage students' active participation in the learning process and provides opportunities for experiential listening (Vidulin et al., 2023).

Aims: The aim was to examine the feelings evoked by music when different approaches to music listening are used.

Method: A total of 531 students (70.3% girls; M_{age} = 16.65; SD_{age} = 1.12) participated in the study during their regular Musical Art lesson in grammar schools. Two lessons were prepared: one dedicated to *Morning Mood* by E. Grieg, and the other to Waltz No. 2 (Suite for Orchestra No. 2) by D. Shostakovich. Both lessons were prepared according to the standard approach (STA) and the cognitive-emotional approach (CEA). The two versions of the lesson had the same structure, number

of listening times and expected outcomes. After the initial and final listening, participants completed the Geneva Emotional Music Scale (GEMS-9; Zentner et al., 2008). The Croatian translation (Žauhar et al., 2023) showed a two-factor structure (Activation, Calmness). Only after the initial listening did participants indicate how familiar they were with the music they had heard.

Results: We examined the effects of listening time (initial, final) and approach to listening to music (STA, CEA) on music-evoked activation and calmness, after controlling for familiarity with the music. *Morning Mood* evoked higher activation in CEA compared to STA, and during the final listening compared to the initial. Within CEA calmness did not differ between the two listening times, but within STA, calmness was less pronounced at the final listening compared to the initial and compared to CEA at the final listening. Waltz No. 2 evoked higher activation in CEA than in STA. Within STA similar levels of calmness were observed at both listening times, and no differences were observed when compared to CEA. Within CEA calmness was more pronounced at the final listening time.

Conclusions: The use of the cognitive-emotional approach to listening to music in secondary school can intensify adolescents' music-evoked feelings.

Keywords: Listening to Music, Music-evoked Feelings, Analytical Listening, Cognitive-Emotional Listening, Grammar School

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The Ensemble of Expertise: A Transdisciplinary Team Approach for Musicians' Rehabilitation Following Occupation-Related Injury

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Background: The severe impact of focal dystonia on professional musicians' careers is recognized, but effective rehabilitation methods remain unclear. Musicians' embouchure dystonia (ED) is particularly challenging to assess and treat due to compound impairments in the oropharyngeal system, complex levels of dysfunction, and the associated neuromusculoskeletal and psychological factors. The rehabilitation of occupation-related health issues in musicians necessitates multiple input and transdisciplinary approaches. However, integrating the expertise of medical, health, somatic, and music professionals is often not well understood nor effectively coordinated.

Aims: The benefits of collaborative, complementary roles and an integrated teamwork approach implemented in a musicians' ED rehabilitation protocol will be outlined and presented.

Method: A case study was documented to describe the gradual progression of an integrated and collaborative approach to the proprioceptive, sensorimotor, neuromuscular, and technical retraining of a French horn player diagnosed with ED. Following the diagnosis by a neurologist, a step-by-step

rehabilitation protocol was designed by a specialist musicians' physiotherapist experienced in dystonia rehabilitation, in collaboration with a Licensed Body Mapping Educator with musculoskeletal movement anatomy training and extensive music education experience. The team also included a speech therapist and a French horn teacher, supported by a medical practitioner, psychologist, and occupational therapist. The diverse expertise of the pedagogy, health, and somatic professionals facilitated reciprocal and cohesive team engagement, with the musician at the centre, actively involved in her recovery.

Results: The collaborative teamwork led to promising progress. After 24 months of rehabilitation, the French horn player regained most of her previous playing ability, although virtuosity and stamina were still lacking. The instrument-specific motor-control exercises were very well supported by the somatic training, the French horn teacher's pedagogical input, and the psychological and medical expertise.

Conclusions: The case study highlights the potential of transdisciplinary team approaches for rehabilitating complex occupation-related disorders in musicians, and for enhancing musicians' performance capacity and well-being. The coordinated teamwork approach integrating professional expertise from health and music domains enabled successful rehabilitation of a complex condition. The results indicate that collaborative rehabilitation approaches are feasible internationally, facilitating specialist input via online video sessions when local health professional expertise is insufficient or unavailable. The study also has important implications for health promotion among musicians, including improved fundamental education on the physical and psychological skills essential for music performance.

Keywords: Musician, Rehabilitation, Occupation-Related Injury, Focal Dystonia, Health Promotion

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Trio Lorenz Hall, 1st Floor

Oral session 7: Processing Music

Chair: Sanja Kiš Žuvela

Feeling in Real Time vs Faking Feelings, or the Limits of AI in Music Performance

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Background: Existing theories of musical ability and conventional pedagogical practice share two significant blind spots: (1) they largely ignore the role of empathic feeling – *Einfühlung* in the German tradition – in expressive performance, and (2) they fail to account for the fundamentally real-time nature of musical performance. Dominant frameworks, including standard music aptitude tests, typically reduce musical faculty to the discrimination and reproduction of discrete musical elements (pitch, rhythm, timbre, etc.), leaving the deeper, experiential dimensions of performance unexplored. Their essential importance can be demonstrated particularly with the advent of AI: If the capacity for music, and consequently performance expression, is much more than the sum of faculties usually measured by standard music aptitude tests – such as the discrimination and reproduction of musical elements – how can AI model it, if at all?

Aims: My talk has three interrelated aims: (1) to introduce and argue for a reconceptualized notion of the faculty for music, defined as the capacity to feel elements of the musical process in real time; (2) to present a theoretical framework – grounded in recent research on performers' cognitive and affective processing – that accounts for subjective meaning-making and temporal navigation in live performance; and (3) to examine whether, and to what extent, this reconceptualized faculty can be operationalized and modelled computationally, thereby probing the limits of AI in crafting genuine performance expressiveness. The presentation is explicitly framed as a provocation for discussion rather than a definitive conclusion.

Main contribution: Drawing on a recent theory of performers' cognitive and affective strategies underlying expressivity and individuality, this demonstration proposes that the faculty for music centrally involves the performer's ability to uncover subjective "meanings" from the various elements of the musical process and to feel them – *einfühlen* – in the act of performance with full concentration. This, in turn, is enabled by the capacity to "navigate" the musical process when performers cognitively and affectively position themselves into the future, the past, and the present in the act of performance by means of focused immersion at well-definable moments ("moments of focused immersion" [MFIs], Stachó 2018 in *Musicae Scientiae*). I aim to discuss why this process seems extremely hard, if not impossible, to fully operationalise and model computationally, thereby defining the potential limits of AI in crafting performance expressiveness.

Implications: The proposed framework has implications across three domains. For performance theory and pedagogy, it foregrounds the centrality of real-time affective engagement and temporal self-positioning as teachable and theoretically tractable dimensions of musicianship – aspects currently largely underrepresented in curricula and ability frameworks. For theories of musical ability, it argues that the faculty for music must be reconceived beyond aptitude test metrics to include capacities for empathic feeling and dynamic temporal navigation. For AI and music technology, the framework identifies a potentially fundamental limit: the real-time, subjectively felt, and meaning-laden nature of *Einfühlung* in performance may be extremely difficult, if not impossible, to fully

operationalize computationally. This raises key questions about the nature of musical intelligence and the boundaries of machine modelling of human expressive performance.

The Archetypal Role of Gregorian Chant: Liturgical Inculturation Between Theological Ideal and Pastoral Reality

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Background: Following the liturgical reforms of the Second Vatican Council, Catholic liturgy increasingly emphasized accessibility, intelligibility, and active participation. At the same time, post-conciliar documents continued to identify Gregorian chant as possessing a distinctive role within the liturgical tradition of the Church. Contemporary discussions on liturgical music therefore frequently reveal a tension between inculturation and the preservation of forms associated with sacred continuity and contemplative worship. Within this context, scholars from liturgical theology, sacred music studies, and psychology of religion have raised questions concerning the relationship between musical form, ritual experience, and the perception of transcendence. While perspectives such as those of Rudolf Otto help illuminate the human experience of mystery and sacredness, this paper approaches the question primarily from the perspective of liturgical theology, examining Gregorian chant not merely as a psychological or aesthetic phenomenon, but as a privileged musical expression of the liturgical word and ecclesial tradition.

Aims: This paper examines the theological significance of Gregorian chant within the context of contemporary liturgical inculturation. While insights from psychology of religion may help explain certain dimensions of sacred musical experience, the study argues that the primary meaning of liturgical music cannot be reduced to emotional, therapeutic, or psychological functionality. Instead, Gregorian chant is considered in relation to its liturgical role as a privileged musical expression of the sacred text and ecclesial tradition.

Main contribution: The central argument is that while Gregorian chant possesses unique psychological qualities – such as stabilizing heart rate and calming the nervous system – these effects are not the "goal" of the liturgy, but rather a dispositional tool (*ancilla liturgiae*). In an era of "spiritual entertainment", where liturgical music often seeks immediate emotional validation, chant offers a "demanding beauty" that fosters patience and humility. The paper posits that the primary function of chant is to serve the liturgical Word; its psychological impact is a secondary, though welcome, vehicle that allows the believer to move from the mundane to the divine. Drawing on Rudolf Otto's concept of the Holy, the author warns against reducing sacred music to a functionalist or cinematic tool, emphasizing that its value lies in its ability to facilitate a genuine ecclesial identity through symbolic distance.

Implications: The study contributes to the interdisciplinary dialogue between liturgical theology and the psychology of religion. It suggests that practitioners and scholars should view the psychological benefits of chant as a "preparatory silence" or a "modulation of humility" rather than an end in itself. This perspective challenges contemporary trends in inculturation to look beyond mere cultural familiarity and recognize the anthropological necessity of ritual forms that transcend immediate emotional gratification.

Keywords: Gregorian Chant, Sacred Music, Psychology of Religion, Liturgical Inculturation, Transcendence

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Music and Cognition During Infancy and Beyond

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Background: In recent years, the beneficial influence of musical experiences on cognitive development has been extensively studied in children from approximately five years of age onwards (e.g. Frischen, Schwarzer, and Degé, 2019, 2021). However, it remains unclear whether musical experiences causally enhance cognitive abilities, as preexisting cognitive differences and self-selection into musical activities cannot be fully controlled at this age. One way to address this limitation is to investigate the emergence of associations between musical experiences and cognitive development from infancy onwards while systematically accounting for the musical home environment.

Aims: The present study examines whether associations between musical abilities and cognitive development, particularly executive functions, emerge in infants between six and 17 months of age under consideration of their everyday musical environment. Furthermore, we investigate whether an early musical training programme enhances executive functions compared to an active play group and a waiting control group. Finally, we examine whether musical training influences infants' neurocognitive processing.

Method: The study is a multilab longitudinal project conducted at three sites in Giessen, Bremen, and Frankfurt. Infants aged six to 17 months are assigned using stratified randomization within musically enriched and non-enriched home environments to one of three groups: an active music training group, an active play control group comparable to PEKiP, and a waiting control group. A screening assessment of musical environment and socioeconomic status will be conducted at five to six months, followed by a pretest at six to seven months. The three-month interventions will begin at seven to eight months, followed by a post-test at 10 to 11 months and a follow up assessment at 16 to 17 months. At pretest, post-test, and follow up, we will assess musical abilities in melody and rhythm, general cognitive development using the Bayley Scales of Infant and Toddler Development, and executive functions using age-appropriate tasks. In a subsample, we will additionally measure neurocognitive processes using resting state EEG and event related potentials elicited by an auditory oddball paradigm, which are assumed to be associated with executive function development.

Results: Data collection is currently ongoing. Planned analyses will examine associations between musical abilities and cognitive development over time, as well as intervention effects on behavioural and neurocognitive outcomes.

Conclusions: This study contributes to a clearer understanding of how associations between musical experiences and executive functions emerge in infancy and whether early musical training influences behavioural and neurocognitive development.

Keywords: Early Cognitive Development, Musical Experience, Executive Functions, Musical Training, Longitudinal Study

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Overview of HUMS – Descriptive Review of Research Citing the Healthy–Unhealthy Music Scale

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Background: Music is a resource for health, but there are moments when music is not used in health-beneficial ways. The Healthy-Unhealthy Music Scale (HUMS) was developed to measure music engagement indicative of youth depression (Saarikallio et al., 2015). The HUMS Unhealthy subscale consists of eight items that measure the use of music for rumination, avoidance, and feeling worse after music listening. A decade after the publication of HUMS a gap still remains with the great majority of music and health research focusing on the health-beneficial uses of music, while HUMS remains as the only psychometric instrument assessing emotionally unhealthy music use (Köhler et al., 2025).

Aims: The aim of the current study was to systematically identify, review, describe, and summarize how scholars have used the HUMS and what new knowledge has been created by using it. Research questions included: 1) Where is HUMS-related research published? 2) How and for what purposes was HUMS used for? And 3) What results were found regarding unhealthy music engagement in particular?

Method: A descriptive review of HUMS-citing research was conducted. All journal papers in the Web of Science Core Collection (WoS CC) that cited HUMS, were written in English, and were published by the end of 2025, were included in the analysis. Inclusion and exclusion criteria were agreed upon, data extraction template prepared, and analysis conducted collaboratively to resolve any conflicts.

Results: HUMS was cited in 99 peer-reviewed articles, mainly in music psychology and music therapy journals. Most citations were in the introduction and discussion sections, simply noting that music can be healthy or unhealthy. Empirical results were reported in 19 studies targeting both adolescents and adults and both non-clinical and clinical populations. Twelve publications reported internal consistencies with mean Cronbach's alphas being appropriate for both Healthy 0.81 and Unhealthy 0.82 subscales. Healthy was associated with positive emotionality and adaptive coping, Unhealthy with negative emotionality, maladaptive coping, and psychological symptoms. HUMS also showed promise as a framework for clinical and preventive work.

Conclusions: Studying unhealthy uses of music complements knowledge on music for well-being. HUMS has been used as a versatile measure, valid beyond its original target population, for exploring correlates of unhealthy music use and as a tool for therapeutic change. Future research should move beyond correlations to causation, zoom into the sub-dimensions of rumination and avoidance, and employ the transdiagnostic character of HUMS to understand music across health-promotion and care.

Keywords: Healthy-Unhealthy Music Scale, Rumination, Avoidance, Emotional Use of Music, Review

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Primož Kuret Hall, 1st Floor

Oral session 8: Processing music

Chair: Anja Pahor

Feasibility and Usability of a Remotely Delivered, Scalable Attention-Based Music Listening Intervention for Older Adults

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Background: Understanding speech-in-competition in noisy environments is a common challenge reported by older adults, and its associated frustrations often lead to decreased social interaction (Loughrey, 2018). Music is well documented in its ability to impact mood and psychological well-being (Särkämö et al., 2014), and emerging work suggests links between musical engagement and auditory as well as cognitive processing, including speech-in-noise, attention, and working memory (Song et al., 2012). However, the literature is dominated by cross-sectional evidence and heterogeneous intervention protocols, and instrumental training is often not feasible or accessible in older adulthood. To address this, we developed a remotely delivered, tablet-based active music listening intervention (SOM+A) designed to replicate key attentional and auditory demands associated with instrumental practice while avoiding its physical and logistical constraints. The present study focuses on establishing the usability, feasibility, and acceptability of SOM+A prior to large-scale efficacy testing.

Aims: The aim of this study is to develop and evaluate the usability, feasibility, and acceptability of SOM+A for standardized, self-administered at-home delivery in older adults. We thus aim to determine whether participants can independently complete the intervention with adequate fidelity, and whether adherence and retention meet prespecified implementation benchmarks.

Method: The participants aged 65+ are recruited and complete all procedures remotely at home using study-provided tablets and high-quality headphones. Eligibility criteria target non-musicians, with adequate hearing to engage with auditory stimuli and no evidence of dementia or major mood disorder based on standardized screening. SOM+A is delivered via a tablet-based app in a shortened 10-session protocol (15–20 minutes/session). Training uses six original instrumental pieces from multiple genres composed for the study to minimize familiarity effects. Sessions combine listening-based monitoring of salient musical changes and guided attention training. Usability and acceptability are assessed through in-app questionnaires administered at regular intervals, capturing clarity of instructions, legibility, ease of navigation, responsiveness, perceived burden, enjoyment, and engagement. Feasibility outcomes include recruitment and retention, adherence to the training schedule, fidelity of responding within tasks, and successful completion of remote procedures.

Results: Data collection is currently ongoing. Outcomes will characterize participant adherence, retention, usability ratings, and acceptability of the intervention, providing quantitative and qualitative indicators of the practicality of remotely delivered active music listening in this population.

Conclusions: This study will provide foundational data regarding the practicality of implementing a structured, attention-based music listening intervention in older adults using standardized tablet technology. Establishing usability and feasibility is a necessary step toward subsequent randomized controlled trial of whether guided music engagement can support listening-in-noise and related auditory and cognitive processes in later life.

Keywords: Music-Based Intervention, Older Adults, Attention

References

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Sacred Organ Music in the Vatican Setting: Cellular Homeostasis, Health and Longevity Implications

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Background: Throughout history, there have been different descriptions concerning the power of music and its effects on the psychological and bodily states of human beings. The organ has always been considered the king of musical instruments, because it encompasses all the sounds of creation. Organs are made to produce the most perfect harmony: the organ wind chest the principal member of the whole organ, is called *"the secret"* because it hides the secret of the harmony from the listeners (Crane, 1956, 79; 118). There have been seven universal normative acts regulating sacred (organ) music, and the pipe organ is recognized as the most suitable for divine worship (Pius X, 1903).

Aims: The paper explores how historical and the theological understandings of sacred organ music articulated in Vatican sources may be interpreted in dialogue with contemporary knowledge of neurobiology, biophysics, and cellular homeostasis.

Method: A qualitative analysis of Vatican and historical sources on sacred organ music was combined with contemporary research on organ music, autonomic physiology, health, and longevity. Historical concepts of harmony, spiritus, sound, and the human body were mapped onto modern physiological concepts while distinguishing historical interpretations from biological mechanisms.

Results: Marsilio Ficino (1433–1499) advocated music in Liber de vita as a means of supporting the

health of mind, soul, and body through harmony and spiritus (Voss, 1992). Athanasius Kircher (1601–1680) understood the organ as both a mechanical model of harmonic proportion, governed by mathematical ratios, and a symbolic microcosm of cosmic order. Contemporary research provides a physiological and biophysical counterpart: musical exposure can modulate autonomic, cardiovascular, and stress-related responses, including heart-rate variability, respiration, blood pressure, and neuroendocrine activity. Long-term musical practice in professional keyboard players, including organists, is associated with brain plasticity and enhanced motor performance, with potential implications for healthy ageing (Gärtner et al., 2013). Emerging research in sonobiology and mechanotransduction indicates that acoustic waves and vibration can interact with mechanosensitive cellular systems, providing a framework for investigating relationships between organ sound and cellular homeostasis (Del Rosario et al., 2024).

Conclusions: Sacred organ music provides a distinctive interdisciplinary model linking historical and theological concepts of harmony with measurable physiological and biophysical processes. We hypothesise that organ music, as a structured auditory and vibroacoustic stimulus, may modulate autonomic and neuroendocrine responses and potentially interact with pathways involved in systemic and cellular homeostasis.

Keywords: Cellular Homeostasis, Sonobiology, Mechanotransduction, Longevity, Organ Music

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Harmonics of Reality: From Musical Acoustics to Quantum Fields and the Cosmos

Brij Kishor Jashal
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Background: Music and physics are often connected metaphorically, yet their relationship is grounded in shared mathematical structure. Musical tones arise from standing waves and harmonic ratios, long ago noted in early cosmological thinking such as Kepler's Harmonices Mundi (Kepler, 1619/1997). Modern physics likewise describes nature through wave equations, quantized modes, and symmetry principles formalized in Fourier analysis (Fourier, 1822). From acoustics to cosmology, oscillation emerges as a recurring organizing concept.

Aims: This paper aims to clarify the common principles linking musical acoustics, quantum field theory, and cosmology, focusing on harmonic structure, resonance, and symmetry as unifying features across physical scales.

Main contribution: Musical sound can be decomposed into discrete vibrational modes using Fourier analysis (Fourier, 1822), the same mathematical framework underlying quantum mechanics and quantum field theory, where particles are interpreted as quantized excitations of fields (Weinberg, 1995). Consonant intervals correspond to simple integer ratios, reflecting structural economy and symmetry – concepts central to conservation laws and gauge invariance. On cosmological scales, acoustic oscillations in the early photon–baryon plasma leave measurable imprints in the cosmic microwave background power spectrum (Planck Collaboration, 2018). Gravitational-wave detections further reveal spacetime itself behaving as a dynamical, oscillatory system (Schutz, 2009). Across domains – from vibrating strings to quantum fields and metric perturbations – nature exhibits a persistent harmonic structure.

Implications: Recognizing these structural correspondences strengthens interdisciplinary dialogue and provides a conceptual bridge between acoustics and fundamental physics. Harmony, understood mathematically rather than metaphorically, appears embedded in the dynamical laws that govern physical reality.

Keywords: Harmony, Vibration, Quantum Fields, Cosmology, Symmetry

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Why Speech and Music Differ in Transmission Range as a Result of the Evolutionary Changes of Their Distinct Processing and Production Mechanisms

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Background: Speech and singing are uniquely human and complex forms of vocalization. Their shared reliance on the auditory modality and affective prosody has led some scholars to propose a common evolutionary origin for language and music (Brown, 2017). However, despite these overlaps, the two systems differ markedly. Language is widely viewed as the primary means for conveying propositional meaning and, for some, as a medium for thought (Millikan, 2005). Music lacks such semantic properties (Lerdahl, 2013), is typically produced collectively, and displays greater pitch stability, rhythmic regularity, and repetitiveness than speech (Margulis, 2014). These contrasts are often interpreted as consequences of distinct evolutionary pressures. One influential account highlights the choric nature of music versus the dialogic nature of language (Haiduk & Fitch, 2022), suggesting that music evolved to promote social cohesion, while language emerged to support information exchange.

Aims: This proposal aims to show that human processing and production mechanisms were influenced not only by social and cognitive demands but also by the distinct adaptive roles of music in long-range intergroup communication and language in short-range intragroup interaction.

Main contribution: It is hypothesized that hominins used two types of vocal signals – intergroup long-distance calls and intragroup short-distance calls – each shaped by environmental acoustic constraints. Long-distance signals are adaptive only when audible over large areas, whereas low-intensity, short-range signals may be advantageous when reduced detectability is beneficial.

Natural selection would therefore favour different acoustic features depending on communicative function. Several differences between language and music align with this scenario. Group singing or drumming amplifies the acoustic signal, while rhythmic synchronization and pitch matching enhance long-range propagation. Music encodes information through rhythm and pitch, and the stability of the fundamental frequency (F0) makes musical signals more resistant to attenuation and reverberation. Spoken language relies heavily on amplitude modulation, which degrades more rapidly over distance. Long-distance paralinguistic systems – such as whistled or drum languages – demonstrate how linguistic content can be translated into musicalized patterns that travel farther. Music's repetitiveness also introduces redundancy, aiding recognition under environmental distortion. The main adaptive function of music as a long-distance call may have been to deter other hominin groups through honest signalling of social cohesion (Hagen & Bryant, 2003).

Implications: This proposal implies that transmission range was an additional evolutionary factor contributing to the divergence between language and music.

Keywords: Speech Processing, Music Processing, Transmission Range, Evolution, Vocalization

References

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Saturday, October 17, 2026

Academy of Music, University of Ljubljana, Kongresni trg 1, 1000 Ljubljana

9:00 – 10:00: Keynote speaker Ana Butković

Individual Differences and Perspectives in Music Research and the Social Sustainability Goal of Well-Being

Julij Betetto Hall, 1st Floor

10:00 – 10:30: Coffee with Ana Butković

Primož Kuret Hall, Ground Floor

10:30 – 11:15: Workshop session 4

Workshop 9: Julij Betetto Hall, 1st Floor
Ilonka Pucihar, Embodied Music Making: A Body-Mind Centering® Approach for Musicians

Workshop 10: Primož Kuret Hall, Ground Floor
Jaka Vid Škapin, Voice and Movement Improvisation as a Health and Care Practice of Holistic Well-Being

Workshop 11: Marijan Lipovšek Hall, 1st Floor
Arijan Mačak & Ana Kavčič Pucihar, Playing by Heart: Memorization as Artistic Freedom in Saxophone Performance

11:15 – 12:30: Parallel oral sessions 9 – 12

Oral session 9: Online presentations (Julij Betetto Hall, 1st Floor)
Oral session 10: Music and Well-Being (Marijan Lipovšek Hall, 1st Floor)
Oral session 11: Music and Well-Being (Trio Lorenz Hall, 1st Floor)
Oral session 12: Music and Social Context (Primož Kuret Hall, Ground Floor)

12:30 – 13:00: Quick refreshment / movement break

13:00 – 14:00: Parallel oral sessions 13 – 16

Oral session 13: Music and Social Context (Breda Oblak Hall, 3rd Floor)
Oral session 14: Music and Social Context (Marijan Lipovšek Hall, 1st Floor)
Oral session 15: Music and Well-Being (Trio Lorenz Hall, 1st Floor)
Oral session 16: Music and Affect (Primož Kuret Hall, Ground Floor)

14:00 – 14:15: Conference closing

Saturday, October 16, 2026

9:00 – 10:00

Keynote speaker Ana Butković

Julij Betetto Hall, 1st Floor

Ana Butković
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Ana Butković works as a Professor at the Department of Psychology, Faculty of Humanities and Social Sciences, University of Zagreb. She has a PhD in psychology and she also graduated flute at the University of Zagreb. Her research and teaching interests combine personality psychology, behaviour genetics and psychology of music. She was one of the founders of the Regional Network Psychology and Music (RNPaM). Ana Butković is also an EC member of the European Association of Personality Psychology (EAPP). Her work is published in journals ranging from individual differences and behaviour genetics to music psychology.

Individual Differences and Perspectives in Music Research and the Social Sustainability Goal of Well-Being

The talk will cover two theoretical perspectives of individual differences, hierarchical personality model with five broad traits and Basic Psychological Needs Theory, part of the Self-Determination Theory, and examine the findings within these perspectives in music research. Further, it will be discussed how these findings can guide us in our understanding of music's importance for the social sustainability goal of well-being.

10:30 – 11:15

Workshop session 4

Julij Betetto Hall, 1st Floor

Workshop 9: Embodied Music Making: A Body-Mind Centering® Approach for Musicians

Ilonka Pucihar
University of Ljubljana, Academy of Music, Ljubljana, Slovenia

Background
Body-Mind Centering® (BMC) is a somatic approach that explores body awareness and developmental movement principles. It has applications in health, the arts and education, offering insights into how bodily systems influence expression and well-being (Bainbridge Cohen, 2012, 2018). Eddy (2006) describes BMC as a means of realizing the vast potential of the human body for self-awareness and growth. For musicians, BMC provides tools to improve posture, flexibility, coordination and resilience, thereby supporting injury prevention and enabling them to perform sustainably. A core aspect of this approach is cultivating a compassionate relationship with oneself. Accepting all aspects of oneself, including limitations, emotions and imperfections, establishes a sense of trust and wholeness. Recognizing the body as a source of wisdom fosters authenticity and a grounded presence, both of which are essential for genuine artistic expression. Embracing our problems, emotions and limitations can prevent the somatization of unresolved issues, which often manifest as illness or pain. Addressing the root causes of symptoms, accepting fears and rejections, and fostering a conscious relationship between the body, feelings, mind, and spirit promotes wholeness. As Hartley (2004) states, this process enables us to grow into our authentic self, fostering trust, love and well-being.

Aims
Participants will delve into the cultivation of a compassionate relationship with their bodies, emphasizing how mindful awareness of bodily dynamics and developmental movement principles can support physical health, alleviate tension and promote better practice habits, performances and overall well-being.

Short outline of activities to be undertaken by the presenters/audience
Participants will engage in experiential exercises, including slow movements, breath awareness, and tactile exploration of the skeletal, muscular, nervous, and organ systems. Guided imagery and improvised movement will be employed to examine movement patterns and alleviate habitual tension. Discussions will focus on the influence of somatic awareness on health and musical expression. The focus will be on fostering a mindful and caring connection with the body, which can enhance both performance and practice routine activities.

Implications for practice
Integrating BMC can improve posture, movement and emotional expression. It supports injury prevention and recovery by raising awareness of movement habits. This approach fosters focus, presence, and adaptability, leading to a more authentic and resilient approach to musicianship. Viewing the body as a dynamic, intelligent system encourages continuous growth and self-healing, benefiting both personal well-being and artistic development. BMC can be incorporated into performance preparation, teaching, and self-practice to promote a healthy and sustainable career.

Specific value of the workshop for the conference
This workshop combines somatic science and artistic practice to provide innovative strategies for achieving an embodied sense of performance and well-being. It will appeal to performers, educators

and health practitioners interested in holistic, body-centred approaches. Through a focus on experiential learning and interdisciplinary collaboration, the workshop encourages participants to reconsider the relationship between the body, mind and music. Ultimately, it inspires participants to cultivate a deeper integration of body and mind, hopefully empowering them to further explore how to practice and perform with greater authenticity, resilience, and expressive freedom.

Keywords
Somatic Practices, Body-Mind Centering®, Musician Health, Body Awareness, Embodied Performance

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Primož Kuret Hall, Ground Floor

Workshop 10: Voice and Movement Improvisation as a Health and Care Practice of Holistic Well-Being

Jaka Vid Škapin
The Well: Global Vocal Improvisation Network, Ljubljana, Slovenia

Background
We are presenting this workshop as a condensed sharing of tools developed within the project "Objem glasu" (Embraced by Voice), funded through Asociacija NGO, Culture and Health Platform (Culture Action Europe), and the municipality of Ljubljana. Working in collaboration with the Slovenian Hospice Society, the authors of the project – Neža Pele (movement artist), Jaka Vid Škapin (voice artist) and Špela Peterlin - Nayeli (psychologist) – designed a series of workshops that created a space where sound and movement became means of contact with inner experience, and at the same time an opportunity to process often ignored feelings. The pilot stage was delivered to volunteers who work with the dying and their relatives. These volunteers often carry an emotional burden for which an appropriate form of care or support is not always established. The project participants developed sensory perception, emotional regulation tools and physical and sound presence, which allows them to have greater stability and resilience when working with vulnerable individuals.

Aims
Every session included group reflection as well as a prompt for engaging with a particular theme in the home and work environments. The following is an example from the first session shared within the theme of tuning in:

> *Observe how you tune in with yourself. With your rhythms, cycles and needs. How do you tune in with your family, with your surroundings, with other people. How do I know that I am tuned in? How does it feel when I am and how does my perception of space and time perhaps change? I don't need to find answers to these questions, I can simply observe and be aware of how the theme of tuning moves through me and my daily activities.*

Short outline of activities to be undertaken by the presenters/audience
The proposed workshop will include a voice and movement warm-up, somatic meditation, duo exercises and open-form prompts that will guide the participants through an embodied exploration of the approaches' toolbox.

We will be exploring:
- receiving and giving support,
- expanding the emotional expressiveness of the voice and body,
- care in the experience of collective emergence,
- our relationship to silence and impulse,
- archetypal form and instant composition of swarming/group mind.

Implications for practice
As an improvisatory processes specialist describes it: "A property of communication in this context is that it is largely non-verbal – it transcends worded language and yet allows for self-expression, reciprocity, shared construction of intent, and group interaction. It can also have greater ambiguity of interpretation than verbal communication alone: the music of a group can appear to have a collective outward intention, but with entirely differing individual inner responses to it." (Bentley, 2011)
We aim to create an inclusive space open to people who are new to collective improvisation, and believe that relational engagement with movement, as well as expanding our notion of what group singing is, can benefit our self-knowledge as well as transform the understanding of spontaneous expression as an accessible tool for improved well-being.

Keywords
Improvisation, Voice, Movement, Wholeness, Resilience

References
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Marijan Lipovšek Hall, 1st Floor

Workshop 11: Playing by Heart: Memorization as Artistic Freedom in Saxophone Performance

Arijan Mačak & Ana Kavčič Pucihar
University of Ljubljana, Academy of Music, Ljubljana, Slovenia

Background
This workshop presents an artistic-research-based exploration of memorized performance through a concrete case study: Johann Sebastian Bach's Partita in A minor (BWV 1013), performed from memory on soprano saxophone. The workshop is directly connected to the doctoral research thesis, "The Relationship between Memorization Techniques and Artistic Performance in the Saxophone Repertoire", in which we investigated how different memorization strategies influence interpretative decisions, structural understanding, reliability under pressure, and stage presence. Rather than discussing memorization in abstract terms, this session presents a transparent insight into the preparation process for a specific work. Bach's music was chosen deliberately: its structural clarity, polyphonic illusion, and formal precision make it particularly suitable for examining how analytical understanding supports memorized performance. The theoretical background briefly connects these

strategies to established models of declarative and procedural memory (Tulving), working memory (Baddeley), and deliberate practice (Ericsson et al.), yet the emphasis remains on artistic application

rather than theoretical exposition.

Aims
The aim is not to prescribe a universal method, but to demonstrate how memorization can be consciously constructed and artistically integrated.

Short outline of activities to be undertaken by the presenters/audience
The workshop begins with a live performance of the partita, played entirely by heart. Following the performance, we will systematically deconstruct the memorization process used in the preparation. This includes:

- Structural and harmonic mapping – identifying formal pillars, cadential points, motivic development, and voice-leading implications to build a cognitive framework before technical repetition.
- Segmented deliberate practice – working with structural "anchors", flexible starting points, and tempo-layering strategies to stabilize memory retrieval.
- Multimodal encoding – integrating analytical, auditory, motor, and visual representations of the score to avoid reliance on a single memory system.
- Mental rehearsal and performance simulation – silent run-throughs, visualization techniques, and pressure-testing strategies developed in preparation for competitions and recital performances.
- Stabilization before performance – consolidating memory through reduced repetition and focused retrieval training.

Instead of interactive exercises, the workshop prioritizes reflective dialogue with the audience.

Implications for practice
Throughout my professional development, including competition and orchestral appearances performed by memory, I have observed that memorization significantly shapes interpretative choices, phrasing freedom, rhythmic flexibility, and communicative presence. In Bach's music in particular, playing by heart alters the performer's relationship to structure and breath, influencing articulation, timing, and expressive pacing. The workshop ultimately presents memorization as a structured component of artistic preparation that strengthens structural awareness, interpretative coherence, and performance reliability, particularly in repertoire that demands clarity and architectural control.

Specific value of the workshop for the conference
The workshop offers a transparent, practice-based insight into how analytical, auditory, motor, visual, and mental-rehearsal strategies can be integrated into artistic preparation. By connecting a live memorized performance with doctoral artistic research and reflective dialogue, it demonstrates how memorization techniques influence interpretation, stage presence, and performance reliability.

Keywords
Memorization, Bach, Saxophone Performance, Artistic Research, Performance Psychology, Deliberate Practice, Musical Structure.

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Tulving, E. (1985). Memory and consciousness. *Canadian Psychology, 26*(1), 1–12.

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11:15 – 12:30

Parallel oral sessions 9 – 12

Julij Betetto Hall, 1st Floor

Oral session 9: Online presentation

Chair: Suvi Saarikallio

Circle Singing in Higher Education: An Empirical Study on English Pronunciation, Aural Perception Skills, and Well-Being

Giuseppe Pantano[1, 2], Susanna Zanella Cavallero[2, 3], Amalia Lavinia Rizzo[2]
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Background: This contribution presents an empirical study on Circle Singing as an inclusive, interdisciplinary educational practice capable of enhancing, aural perception skills, English pronunciation and well-being through embodied and arts-based learning (Pantano & Rizzo, 2025). Grounded in evidence-based pedagogy and international frameworks for inclusive education (Booth & Ainscow, 2014), Circle Singing integrates improvisation, language, and collective participation to support all learners, especially those with special educational needs. Its embodied dynamics resonate with phenomenological accounts of perception and enaction (Varela et al., 1993) and draw on research showing that music regulates emotion (Juslin & Sloboda, 2001), promotes neural plasticity and cross-domain transfer (Kraus et al., 2014), fosters experiences of flow, and enhances psychophysiological well-being across everyday life domains (Wosch & Wigram, 2007). In this context, the inclusive dimension is enhanced through music's capacity to act as an environmental facilitator (Rizzo, 2025) and through its integration with English lyrics, allowing students to develop linguistic competences within an embodied and engaging collective experience.

Aims: The aim of this study is to demonstrate that a Circle Singing laboratory can foster significant gains in aural perception skills and English pronunciation; the development of socio-relational skills; improvements in well-being indicators, including an increased sense of belonging, reduced anxiety, and enhanced bodily and vocal awareness.

Method: A mixed quali-quantitative design was implemented in a 15-hour Circle Singing laboratory conducted at Università degli Studi Roma Tre. The intervention involved 104 students from Educational Sciences and DAMS ("Disciplines of Arts, Music and Performing Arts") and was compared with a control group of 84 students. Musical and linguistic outcomes were measured using standardized digital instruments (Mini-PROMS and SpeechAce), while socio-relational dimensions and indicators of well-being were assessed through self-evaluation instruments, including Likert-scale questionnaires and focus groups.

Results: Preliminary analyses indicate improvements in both musical and linguistic competencies following the Circle Singing intervention. Comparisons between pre- and post-test results revealed gains across all dimensions of aural perception assessed through Mini-PROMS (melody, tuning, accent, and tempo), with overall scores increasing by 21.32%, suggesting substantial development in auditory discrimination skills. Pronunciation development was also consistently observed across

the four "Intermediate Sentences" training modules provided by SpeechAce, with average gains ranging from approximately 6% to 9%. Moreover, participants completed pre- and post-test questionnaires consisting of 28 items designed to explore perceptions of group belonging, breath control, vocal confidence, melodic and rhythmic awareness, and comfort in speaking English within collaborative contexts, using a five-point Likert scale ranging from "very low" to "very high". In addition, a final 16-item reflective questionnaire was administered at the end of the intervention to gather further qualitative insights into participants' emotional engagement and overall well-being throughout the Circle Singing activities. Qualitative data from focus groups further confirmed strong emotional engagement, collaborative cohesion, and enhanced well-being.

Conclusions: The preliminary findings suggest that Circle Singing may support the development of English pronunciation and aural perception through the embodied repetition of English utterances, collective vocal interaction, and sustained attention to pitch, rhythm, accent, and listening processes. Improvements in Mini-PROMS and SpeechAce scores were accompanied by qualitative reports of increased vocal confidence, reduced anxiety, stronger group belonging, and greater bodily awareness. These results indicate that musical and linguistic development within Circle Singing may be closely connected to collaborative and embodied forms of participation, supporting its potential as an inclusive educational practice for heterogeneous learning contexts.

Keywords: Circle Singing, Inclusive Education, Interdisciplinary Education, Music and Language, Music and Well-Being

References

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Learning from Non-WEIRD Communal Musicking: Towards Intercultural Frameworks of Music for Well-Being

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Background: Most research on music remains rooted in individualistic approaches dominated by Western, Educated, Industrialized, Rich, and Democratic (WEIRD) societies (Henrich et al., 2010). However, non-WEIRD contexts represent the vast majority of global psychological diversity. These societies often emphasize interdependent self-construals, where identity is rooted in relationships and group belonging rather than individual separation (Miyamoto et al., 2019). As such, current WEIRD-focused research risks overlooking how musicking operates as a culturally embedded well-being practice in these interdependent contexts.

Aims: Studies will be critically reviewed and synthesized, and the evidence organized within a Circle of Life framework (Goudreau et al., 2008) to address social, cultural, spiritual, mental, emotional, and physical dimensions of well-being. This will offer an understanding of how communal musicking can therefore foster belonging, cultural continuity, spiritual reconnection, personal growth, cognitive engagement, emotional regulation, and physical relaxation in ways that challenge WEIRD-centred assumptions and music psychology frameworks.

Main contribution: Rather than directly comparing WEIRD and non-WEIRD practices, this presentation examines what can be learned from non-WEIRD communal musicking. It draws in particular on current evidence from diverse worldwide studies, including research on Indigenous singing and hand-drumming groups (Dicks, 2014; Laurila & Willingham, 2017), elders' choirs (Netshivhambe, 2025), trancing through music accounts (Herbert, 2011) and neuropsychology results (Fachner & Rittner, 2011; Huels et al., 2021), and pioneering neuroimmunology findings by Bittman et al. (2001).

Implications: The presentation calls for future research that is decolonizing, interculturally co-designed, and neuropsychologically informed, in order to shape new global frameworks in music psychology and inform health policy and clinical practice.

Keywords: Communal Musicking, Interculturalism, Decolonizing Frameworks, Music for Well-Being

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Cognitive and Prosocial Effects of Daily Choral Singing at School

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Background: Recent meta-analyses (Román-Caballero et al., 2022; Bigand & Tillmann, 2022, Jamey et al., 2024) suggest that musical training may support children's cognitive development. However, alternative perspectives argue that the cognitive impact of music is limited and that focus should be put on the social-emotional effects of engaging in music (Schellenberg & Lima, 2024). Furthermore, the majority of the studies included in these meta-analyses concern instrumental practice. Fewer studies explored the benefits of singing, and longitudinal data examining these effects in school contexts remain limited.

Aims: The present study aimed to investigate the longitudinal effects of daily choral singing implemented in an ecological school setting on both cognitive development and prosocial behaviour in primary school children. Specifically, we sought to determine whether regular participation in a collective singing activity would lead to enhanced cognitive outcomes beyond age-related developmental gains, and whether choral singing would foster prosocial behaviours and social cohesion within classrooms, compared to an active and a passive control condition.

Method: This longitudinal study involved 314 primary school children aged seven to 10. Children were assigned by class to either a daily 20-minute choral singing programme led by a trained musician (intervention group), a creative writing programme (active control group), or no additional activity (passive control group). Cognitive outcomes were assessed at the start and end of each academic year, using standardized measures of attentional control, short-term and working memories, and processing speed. Language abilities (reading, writing, verbal fluency) were also measured. Prosocial behaviours and socio-emotional engagement were evaluated through resource sharing games, questionnaires and classroom social network analysis.

Results: Generalized mixed models were used to account for nested data (students within classes) and repeated measures. The results indicate that while all pupils showed age-expected improvements in cognitive measures over time, the choral singing group did not exhibit significantly greater gains, with the exception of short-term memory. In contrast, robust effects were observed for prosocial behaviour. Children engaged in the choral programme demonstrated significantly higher increases in cooperative behaviours, compared to the other groups ($\beta = 2.06$, $SE = 0.73$, $t = 2.83$). The evolution of several indicators of the classroom's social networks analysis also suggests that greater group cohesion is obtained.

Conclusions: Taken together, these results suggest that choral singing at school may act less as a direct enhancer of cognitive performance and more as a facilitator of social engagement and prosocial development in childhood. Indeed, choral singing is a cooperative activity requiring synchronized behaviour from the participants, which may be central to these effects. We discuss the implications for arts-based educational interventions, highlighting the potential of choral activities to strengthen peer relationships and enhance the social climate of classrooms. Future research should further explore the mechanisms underlying these social benefits and their potential effects on school learning and performance.

Keywords: Choral Singing, Cognitive Development, Prosocial Behaviour, Primary School Children

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Supporting Bow Control Through Qigong: A Case Study on Postural–Motor Integration in a Violinist with Dyslexia

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Background: Music performance quality is closely linked to the performer's psychophysical well-being. When a musician is anxious or stressed, their body responds with increased muscle tension, which may alter motor control and compromise execution quality (Bruyneel et al., 2024). Individuals with dyslexia may be particularly susceptible to this mechanism: vulnerabilities in emotional regulation may manifest as performance anxiety in demanding situations such as lessons or public performances (Oglethorpe, 2002), which triggers hyperactivation of the sympathetic nervous system, as reflected in heightened muscle tension and reduced motor fluidity (Kenny, 2011). Qigong – a traditional Chinese movement practice – addresses this psychophysical vulnerability through slow, controlled movement, postural alignment, and breath regulation. Research has documented its positive effects on postural regulation in musicians (Hartmann, 2005), as well as its impact on anxiety, depression, and psychological well-being (Wang et al., 2013).

Aims: This study explores whether a Qigong-based intervention targeting psychophysical regulation can improve music performance quality in a violinist with dyslexia.

Method: This exploratory qualitative single-case study focuses on a violinist with a formal diagnosis of dyslexia who participated in a Qigong-based intervention over several weeks, carried out during instrumental lessons and individual practice. The programme combined slow, sustained exercises targeting alignment, proximal–distal integration, controlled weight transfer, and upper-limb coordination with diaphragmatic breathing techniques to reduce sympathetic arousal and foster bodily awareness. Video recordings, structured observations, and semi-structured interviews were used to examine changes in bodily organization, motor responses, and the participant's subjective experience of performance anxiety and bodily perception during performance.

Results: Qualitative analysis revealed gradual improvements in psychophysical regulation, which were associated with enhanced music performance quality. The participant demonstrated greater postural stability and temporal control, alongside a reduction in self-reported sympathetic activation symptoms, such as sweating and perceived elevated heart rate. These improvements were reflected in enhanced bow control, reduced bow pressure, and improved sound quality.

Conclusions: Although based on a single case, these findings suggest that Qigong may enhance performance in musicians with dyslexia by addressing psychophysical factors, offering new insights into the interplay between emotional regulation and motor control, with implications for both music psychology and inclusive music education. Future research should investigate these processes in larger samples.

Keywords: Qigong, Dyslexia, Performance Anxiety, Psychophysical Regulation, Motor Control

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The Association Between Everyday Music Listening and Mental Health in Adults with Hearing Loss – A Survey Study

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Background: Listening to music is a useful way of managing emotions – and being able to choose what we listen to and when is particularly impactful. Everyday music listening is associated with increased well-being and quality of life, and decreased levels of depression and anxiety. However, research in this area typically excludes people with hearing loss. A scoping review found evidence of implicit and explicit exclusions in previous studies, with the hearing health of the participants not asked about nor recorded (Beckwith et al., 2025). Since an estimated one in five of the global population have some experience of hearing loss (Haile et al., 2021), excluding the experiences of individuals with hearing loss from such research means that findings cannot be fully generalized.

Aims: This study therefore sought to address this gap in knowledge by answering the following research question: Is regular engagement with everyday music listening associated with positive mental health, well-being, and quality of life, for adults with hearing loss? In addition, the study sought to better understand the experiences of adults with hearing loss, how they engage with everyday music listening, and whether engagement with and enjoyment of music changes as hearing health changes.

Method: A pre-registered, cross-sectional online survey was conducted using a combination of validated measures that consider the participants' hearing health, use of music for emotion regulation (Saarikallio, 2012), and self-reported mental health and well-being (e.g. Tennant et al., 2007; The WHOQOL Group, 1995). Participants were also invited to provide information about how their hearing loss has impacted on how they engage with music. Structural equation modelling will be used to test the hypotheses and measure the relationships between the variables: hearing loss severity, impact of hearing loss, hearing difficulties, music importance, music engagement, music use for emotion regulation, well-being, quality of life, depression and anxiety.

Results: Adults with hearing loss ($N = 222$) participated: age range 18–89 (mean 48.01, SD 18.81), split by gender – female (55.66%) / male (40.54%) / other (3.60%). It is hypothesized that the use

of music for emotion regulation, importance of music, and engagement with music will be positively associated with well-being and quality of life, and negatively associated with depression and anxiety. It is also hypothesized that the impact of hearing loss, hearing loss severity, and hearing difficulty will be negatively associated with well-being and quality of life, and positively associated with depression and anxiety. Differences between groups, such as age, gender, and use of hearing aids, will also be considered.

Conclusions: Previous research in this area has looked at the experiences of people who do not have any hearing loss. It is therefore important that people with hearing loss are encouraged to take part in research, so that their experiences are understood and to determine whether these are similar or different to those of people without hearing loss. The study's findings will be shared with stakeholders (public and professionals) within a lived experience advisory panel event to ensure that future research addresses the needs and priorities of this currently underserved population.

Keywords: Aural Diversity, Well-Being, Quality of Life, Hearing Health, Emotion Regulation

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Longitudinal Patterns in Contextual and Holistic Self-Regulated Learning and Their Relationship to Significant Events: A Bayesian Analysis

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Background: Self-regulated learning (SRL) is when learners manage their cognition, metacognition, and behaviours to control their learning. This occurs cyclically over three phases: forethought (planning/motivation for learning), performance (learning), and self-reflection (post-learning). Additionally, SRL is inextricably linked to motivation (Zimmerman, 2008). SRL is not considered permanent but rather context-specific, meaning it may change based on situation (McPherson & Zimmerman, 2011). Though short-term SRL is relatively consistent (Weinert, 2023), semiregular collections of SRL over longer times provide evidence that SRL shifts, often within ranges unique to each learner (Osborne et al., 2021). However, learners gradually develop their ability to self-regulate (McPherson & Zimmerman, 2011), meaning the trajectory of changes (e.g. gradual or terraced) is

not established. Additionally, it is unclear whether shifts are relatively permanent (e.g. learning to self-regulate) or short-term fluctuations based on context. It is possible that strongly motivating factors, such as an upcoming performance, might induce short-term changes in SRL during an individual practice session.

Aims: Therefore, the purpose of this study is to investigate the consistency of SRL over 12 weeks. Additionally, the impact of upcoming significant musical events on contextual SRL is explored.

Method: SRL was measured using the Self-Regulation in Music Questionnaire (SRMQ), a forced-choice questionnaire that examines contextual and holistic SRL and has high internal reliability (α=.906; Weinert, 2023). SRL was assessed weekly over 12 weeks. Participants (N = 30) were students in an orchestra and wind symphony at a large university in the United States and included a mix of music majors and non-music majors. Participants completed the SRMQ weekly during a normal practice session and identified any significant events in the upcoming week.

Results: Data analysis is ongoing and will be completed by the conference. Data are being analysed using a Bayesian multilevel model. Though relatively novel, this approach is appropriate for medium sample sizes with varying numbers of repeated observations. Distributions of the model parameters, SRL over the 12 weeks and the relationship to significant events will be explored utilizing Markov chain Monte Carlo (MCMC).

Conclusions: The results are expected to provide information regarding SRL fluctuations. Specifically, they will answer whether SRL changes in advanced musicians are relatively enduring or simply temporary shifts. Evidence regarding the effect of significant events on SRL and motivation in individual practice will have implications both for researchers exploring SRL and educators working with students to optimize their musical learning.

Keywords: Self-Regulated Learning, Individual Music Practice, Longitudinal, Contextual, Significant events

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Exploring Individual and Age-Related Differences in Children's Music-Inspired Narratives

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Background: Children learn to make sense of situations and about others' perspectives through narrative and play (Hutto, 2007), and adults often describe music in terms of narrative (Margulis, 2017), with less familiar music being likely to inspire fictional narratives in adult listeners (Jakubowski et al., 2024). Few empirical studies have explored how young children articulate their lived experiences with music or the meanings they construct from them. When asked about the feelings they experienced in response to unfamiliar musical extracts, the five- to 11-year-olds interviewed by Owen et al. (2024) also spontaneously reported that they imagined various narratives and scenarios. Given the role of narrative in making sense of unfamiliar stimuli, exploring children's music-inspired storytelling might offer insight into how musical meaning-making develops (Owen et al., 2024).

Aims: In a three-year longitudinal study, we are exploring how children's musical meaning-making evolves developmentally through their verbalizations of musical experiences. Here, we aim to learn about consistencies and possible developmental patterns in children's use of storytelling in making sense of unfamiliar musical stimuli.

Method: In the first four of six biannual experiments, children (aged five to 13, N =80) listened online to seven extracts (approximately one minute each) of film soundtracks without lyrics (Eerola & Vuoskoski, 2011) and were invited to describe any thoughts and feelings the music gave rise to. We used data-driven thematic analysis to examine the language and concepts children used in articulating their responses and statistical analyses to investigate potential demographic and musical background effects.

Results: Preliminary results indicate significant use of storytelling with remarkable consistency within certain individuals across experiments. Children appear to adopt the perspectives of multiple protagonists within their narratives, increasingly so with age. Whereas the youngest (aged five to seven) are more likely to describe their own perspectives and stories as happening in the present, older children (aged eight to 11) are more likely to take the perspectives of others or describe events more remote in time.

Conclusions: Children's use of storytelling in describing their musical thoughts and feelings reflects the use of narrative as a strategy for meaning-making (Hutto, 2007). The likelihood of adopting multiple perspectives increasing with age supports the idea that this process is enhanced through learning, and reflects the developmental expectation that children become less self-focused and more aware of others' perspectives as they grow older.

Keywords: Lived Experience, Musical Meaning Making, Narrative, Children

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Marijan Lipovšek Hall, 1st Floor

Oral session 10: Music and Well-Being

Chair: Špela Loti Knoll

Role of Music Therapy in the Development of Language Skills in Children with Autism Spectrum Disorder: A Systematic Literature Review

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Background: Autism Spectrum Disorder (ASD) is a serious neurodevelopmental condition that typically manifests in early childhood, characterized primarily by challenges in communication, social interaction, behaviour, and emotional regulation. Despite these challenges, many children with ASD display exceptional musical talent – making music a natural bridge that can strengthen their self-expression, social connections, and the neurological structures essential for speech and social skills. Until recently, minimally verbal children with ASD were rarely included in research studies because they are difficult to assess, particularly with standardized tests. However, over the past decade, assessment methods have improved, and several studies have been conducted to explore the effects of language-based interventions in this population. Given the unique characteristics of ASD, naturalistic approaches have become increasingly necessary in recent years, with music therapy emerging as one of them.

Aims: Following the literature review, the aims of this study were refined into three focused questions: whether Music Therapy (MT) or Music-Assisted Programmes (MAP) yield better outcomes in the development of language abilities in children with autism spectrum disorders than non-music interventions (NM); whether MT or MAP play a significant role in improving fronto-temporal brain functional connectivity, thereby supporting the development of language abilities in children with autism spectrum disorders; and whether MT or MAP contribute significantly to the development of social communication and, consequently, to the enhancement of language abilities in this population.

Method: The systematic literature review was conducted in accordance with the PRISMA guidelines. Its aim was to identify and understand the role of music therapy in children with ASD and to offer guidance for future investigations based on the findings. The literature search was carried out in February 2025 using the databases PubMed, Sage Publications, and ScienceDirect. Search results were limited to "open access" and "full text" articles published within the last 10 years (2015–2025). Review and systematic review articles, as well as duplicate records, were excluded. Titles and abstracts were screened for relevance, after which the remaining articles were assessed using the following exclusion criteria: (1) the study did not address the role of music therapy in language development; (2) the study was grey literature or a non-original publication (e.g. commentaries, letters, dissertations, conference abstracts, case studies, or unpublished literature); or (3) the population did not include children with ASD. Four articles were identified through database searches, and two additional articles were included through citation searching, resulting in a total of six studies in the review.

Main contribution: Through this systematic literature review, we successfully addressed the review's objectives and fulfilled its purpose of analysing existing scientific and professional literature on the selected topic. The included studies were categorized into three thematic areas in line with the aims of the review: the results of MT or MAP compared to NM interventions in the development of language abilities, the role of MT or MAP in improving functional fronto-temporal brain connectivity, and the role of MT or MAP in developing social communication. Based on these findings, we conclude that MT plays a significant role in the development of language abilities, in enhancing functional fronto-temporal brain connectivity, and in supporting social communication in children with ASD. MAP had more positive effects on language abilities in children with ASD compared to NM interventions, although the most pronounced improvements were observed in social interaction rather than in language development itself.

Implications: Our literature review can make a meaningful contribution to understanding the role of music therapy in the development of language abilities in children with ASD. The study of music therapy's role is important and continues to evolve, and our systematic review offers a valuable insight into the current state of research on this topic. It highlights the importance of early intervention and parental involvement. As previously mentioned, the findings span several thematic areas where music therapy has shown a significant positive impact, making this review a useful foundation for further, more in-depth research.

Keywords: Autism Spectrum Disorder, Children, Music Therapy, Language Development, Minimally Verbal Children

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Using Elements of Music Therapy in Piano Education in Working with Children with Autism Spectrum Disorders

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Background: Music therapy in primary education has been recognized as very beneficial. Integrating music therapy into primary classrooms not only enhances learning but also contributes to students' overall well-being, providing a foundation for lifelong social and emotional skills (Dios Tronch, 2025). However, learning to play an instrument is not music therapy, and its demands can have negative effects on mental health and self-confidence, especially when working with students

with learning difficulties. The presentation will show the use of elements of music therapy in working with a student with learning difficulties on the autism spectrum.

Aims: In Croatia, we are increasingly faced with the challenge of working with students with learning difficulties, especially those with autism spectrum disorder. Moreover, without support from within the system, teachers are left to their own devices in such work. Although learning music and playing an instrument have beneficial effects on the development of children with disabilities, this is not music therapy. In working with a student with learning difficulties on the autism spectrum, and problems in speaking and understanding speech, it was first necessary to adapt the teaching method to the student's needs. However, the student began to develop negative reactions to mistakes as the material requirements started to increase, and this is when the application of elements of music therapy in the classes began. The sharing of experience in working with this student and applying elements of music therapy could help other teachers who are facing similar challenges.

Method: Based on my practical experience as a piano teacher of a student with learning difficulties on the autism spectrum, I will present how music therapy differs from special music education and how incorporating some elements of music therapy can improve the teaching process. My work with this student started in the second grade of music school and lasted until the end of his basic music education, from when he was 10 to 15 years old. I used music therapy techniques based on the Nordoff-Robbins approach in the classes. The boy's parents were informed and agreed to the use of elements of music therapy in classes, and they also applied some at home.

Results: Using elements of music therapy in the student's piano lessons has proven to be beneficial. It helped create a more productive atmosphere and develop a better relationship between the student and teacher. The student also learned to deal with mistakes while learning and developed greater self-confidence. A recording of the student's performance at a graduation concert demonstrates his ability to handle mistakes, even in front of an audience.

Conclusions: Like any learning, learning to play an instrument can be frustrating for students, especially students with learning difficulties, but the process can be facilitated by using elements of music therapy in lessons. Every student is different, so the presented methods will not necessarily have the same effects in all cases, but it is hoped that a presentation of them will inspire others to adopt new approaches in their work.

Keywords: Music Therapy, Piano Education, Special Needs Education

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Singing and Vocal Expression in Musical Arts Assistance: A Theoretical Review

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Background: The human voice is one of the most intimate and embodied means of musical expression. In musical arts assistance and related therapeutic approaches, singing and vocal expression are increasingly recognized as important resources for emotional communication, self-awareness, and well-being. Although international literature on voice-based therapeutic work has

grown considerably, this field remains comparatively underrepresented in Slovenian academic and professional discourse.

Aims: This research aims to synthesise key theoretical and professional literature on singing and vocal expression in musical arts assistance. It seeks to clarify the conceptual foundations of voice-based work, identify major methods and therapeutic applications, and distinguish between singing as artistic performance and singing as a therapeutic medium.

Main contribution: This research presents a structured review of the literature in five interrelated areas: historical and developmental perspectives on vocal expression (Newham, 1998; Uhlig, 2006); psychodynamic and psychotherapeutic concepts relevant to voice-based work (Newham, 1998; Austin, 2008); physiological foundations of voice production and the role of breathing (Newham, 1998; Schwartz, Boyle, & Engen, 2018); major methods that use the voice as a primary medium, especially Voice Movement Therapy (Newham, 1998) and Vocal Psychotherapy (Austin, 2008), alongside complementary approaches and alternative therapeutic uses of voice; and clinical applications of singing and vocal work across diverse populations, including infants and parents, people with dementia, children and adolescents, autistic individuals, people with mental health difficulties, chronically ill patients, and hospice clients (Uhlig & Baker, 2011). The review argues that, in therapeutic contexts, singing functions not only as artistic expression but also as a medium of affect regulation, embodied self-expression, interpersonal attunement, and symbolic processing. It further highlights the close relationships among the voice, breathing, identity, and emotional experience.

Implications: This research offers an integrated conceptual framework for understanding singing and vocal expression in musical arts assistance. It may support future interdisciplinary research in music therapy, arts therapies, and education, while also providing a useful theoretical foundation for practitioners and students. More broadly, it helps situate voice-based therapeutic work within current discussions of music, affect, and well-being.

Keywords: Musical Arts Assistance, Singing, Vocal Expression, Breathing, Music Therapy

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Musical Experience in Vincent d'Indy's Thought: From the Concept of Emotion to Phenomenological Perspectives

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Background: Vincent d'Indy is recognized as significant not only for his contribution to French culture, pedagogy, and music theory of the fin-de-siècle, but also for the forward-looking nature of his aesthetic ideas, valuable for musical semiotics (Algirdas Greimas, Eero Tarasti), the psychology of aesthetic perception (Gilles Saint Aromain), and the theory of *l'effet de vie* (Marc-Mathieu Münch).

Aims: Our aim, through a contextual analysis of d'Indy's terminological apparatus (in *Cours de composition musicale*, *Écrits*, and *Ma Vie*), is to specify the range of ideas anticipating theories of music as lived reality: (a) musical phenomenology (d'Indy is concerned with musical experience), and (b) music psychology (he identifies principles governing both creation and perception).

Main contribution:
1. The range of sources employed by d'Indy – from Thomas Aquinas to Charles Lévêque – shapes his use of terminology drawn from religion (*Être, l'âme*), philosophy (*l'esprit, la matière, l'émanation*), and aesthetics (*Variété, Unité, Beauté*). At their intersection emerges a group of concepts marking the transition in his thought from late nineteenth-century "philosophical psychology" (Stanislas Rzewuski) toward a pre-disciplinary conception of musical experience integrating creation, work, and listener.

2. "Emotion" is interpreted as the generator of the creative process, activating the "*facultés créatrices*" through intensification of the unified "*sentiment*" (feeling) into "*passion*". Realized in duration, it functions as an intentional force (a distant anticipation of Roman Ingarden), shaping an experiential configuration in the listener that mirrors the creator's inner condition and ensures the work's receptive self-identity. Although, chronologically, this idea of d'Indy could not yet belong to the methodological field of experimental psychology, it may nevertheless be considered within the dichotomy between "emotion perceived" and "emotion felt" (Alf Gabrielsson, Kari Kallinen): by shaping the former, the composer, according to d'Indy, must achieve its transformation into the latter. The differentiation of their qualitative range – from crude, sensory "sensation" to a refined form activating intelligence – corresponds, in turn, to the criteria used for the "classification and measurement" of emotions (Marcel Zentner, Didier Grandjean, and Klaus R. Scherer).

3. "*Signes extérieurs"*, a concept borrowed from Leo Tolstoy and understood as musical structures (from cell to theme), function not as carriers of emotion (as in the thought of d'Indy's teacher Albert Lavignac, rooted in the Baroque doctrine of the affections), but as: (1) conduits of emotion, a role adopted from Richard Wagner (the concept of *Gefühlswegweiser*) and realized through "expression"; and (2) models of feeling, through the immanent *l'accent expressif* that modalizes them (Tarasti), anticipating theories of musical meaning by Leonard Meyer, Susanne Langer, William Thompson, and Jerrold Levinson.

4. The synthesis of *signes extérieurs* in the recipient's consciousness, through memory activation, gives rise to musical structure as a perceived unity, correlating with the Bergsonian conception of music as sounding duration synthesizing interpenetrating images, and anticipating retention in Alfred Schütz's phenomenology.

5. *Imagination* as a pre-intellectual creative faculty organizing raw impressions into primary images finds parallels in Théodule Ribot's, Gabriel Séailles's, and Théodore Wyzewa's ideas, while anticipating cognitive theories of transforming primary sensory impressions into mental images (Stephen M. Kosslyn).

Implications: Situating d'Indy within emerging scientific conceptions of musical experience allows reassessment of his image as a late Romantic resistant to new artistic tendencies, and of his late "landscape" works, where musical images appear as emotionally charged traces interpenetrating within consciousness. This approach reconciles, within a Bergsonian–Schützian framework, the central opposition in the French tradition between Debussysts and d'Indysts, and also allows d'Indy to be regarded, in part, as a precursor to Olivier Messiaen's ideas on musical duration and meaning, alongside his teacher Paul Dukas.

Keywords: Vincent d'Indy, Musical Phenomenology, Creative Imagination, Musical Emotion, Musical Expression

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Health Promotion in Music Education: Musicians' Health Literacy as a Conceptual Framework

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Background: There are increasing calls for health promotion across music education environments, with integrated health education as well as systemic change. Research on musicians' health education demonstrates that organizational support is fundamental in order to implement a healthy settings approach, and recommends the investigation of strategies for enhancing students' health literacy (HL) in order to achieve sustained behaviour change. Studies on HL show that merely providing health information does not automatically result in health behaviour change or improved health outcomes. HL places individuals and their health within the dynamic interplay of individual, social, and environmental health determinants. Musicians' health literacy (MHL) is a multifaceted occupation-specific concept relevant in music contexts. Various factors, including organizational and cultural influences on behaviour, impact MHL. Therefore, MHL theory provides a robust framework for the development, implementation, and evaluation of musicians' health education within music curricula.

Aims: The aim of this paper is to explore MHL as a conceptual and competency framework for integrating musicians' health into music education. It will examine the effects of MHL on student musicians' health behaviours; health education design and delivery; and organizational responsibility for health in music education.

Main contribution: An outline will be presented of how the dimensions of MHL can be applied as a conceptual and competency framework for health promotion in music education. The study begins with an introduction to musicians' health education and health promotion, followed by a definition and discussion of the occupation-specific construct of MHL, situating it within context-dependent determinants of health. A comprehensive description of MHL, including the development of the Musicians' Health Literacy Questionnaire (MHL-Q19), modelled from the European Health Literacy Survey (HLS-EU), will provide the robust theoretical foundation.

Implications: The four HL dimensions of the MHL-Q19 encompass accessing, understanding, appraising, and applying musicians' health information. These dimensions interact with the domains of health: Healthcare (competencies relating to medical or clinical issues and advice); Disease Prevention (competencies concerning risk factors for musicians' health); and Health Promotion (competencies related to the determinants of health). The matrix formed by these dimensions and domains of MHL can be used to design and scaffold the content and learning outcomes of health promotion modules in music education. The success of health promotion, both at micro and macro

levels, is contingent upon high levels of HL across entire organizations. The MHL conceptual model provides music education with a practical framework for individual and organizational health responsibility.

Keywords: Musicians' Health Literacy, Health Education, Health Promotion, Health Behaviours, Learning Outcomes

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Trio Lorenz Hall, 1st Floor

Oral session 11: Music and Well-Being

Chair: Jovana Blagojević

Music-Based Loneliness Regulation: A Mixed-Methods Survey Identifying Affective and Affiliative Pathways

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Background: Loneliness is highly prevalent (Berlingieri et al., 2023) and detrimental for health and well-being (Holt-Lunstad, 2017). Loneliness frequently arises in response to social losses, such as bereavement, relationship breakdown, and migration (McKenna-Plumley et al., 2023). Listening to music is very common during periods of social disconnection (Fink et al., 2021), and prior research suggests that music can regulate affect and act as a surrogate for social contact (Groarke et al., 2022). However, the processes through which individuals use music specifically in response to loneliness remain under-explored.

Aims: This study examined how listeners describe using music when experiencing loneliness, with the aim of identifying underlying regulatory goals and patterns of engagement.

Method: A mixed-methods online survey was conducted integrating quantitative measures with closed and open-ended questions. The survey was informed by the authors' prior in-depth qualitative

interview work on music and loneliness. Participants were recruited via social media and a university participation system. Of 295 responses, 141 met the inclusion criteria following removal of responses indicative of low effort (M_age = 32.26, SD = 14.05; 75% women). Measures included the UCLA three-item Loneliness Scale and subscales of the Music USE questionnaire assessing music listening frequency. Open-ended responses were analysed using a codebook thematic analysis approach in NVivo, combining deductive and inductive coding, pattern mapping, and code co-occurrence analysis.

Results: Participants reported moderate loneliness (*M* = 5.45, *SD* = 1.84), with 51% scoring within the range of scores indicative of frequent loneliness, alongside moderate levels of music engagement (Index of Music Listening: *M* = 10.97, *SD* = 6.12). Within this context, 84% of participants reported turning to music when feeling lonely; 59% indicated that music affected their emotions during loneliness, and 48% reported music increased feelings of social connection when physically alone. Qualitative analyses identified two primary regulatory outcomes. First, affective relief was achieved through (a) emotional immersion via mood-congruent, negatively valenced music facilitating engagement and catharsis, and (b) emotional modulation through distraction via upbeat, positively valenced music aimed at mood elevation. Second, restored belonging emerged through cognitive and meaning-making processes. Identifying with lyrical themes of hardship fostered feelings of being understood and supported reappraisal of loneliness as a shared experience, while music-evoked reminiscence activated memories of significant relationships, challenging perceptions of social network deficits.

Conclusions: The findings support a dual-pathway framework of music-based loneliness regulation comprising affective and affiliative routes. Music appears to function not only to manage emotional discomfort aroused by loneliness, but also to restore a sense of belonging through symbolic and autobiographical processes. These results provide an empirically grounded foundation for further theoretical development and investigation of music's role in addressing social disconnection.

Keywords: Music Listening, Loneliness, Public Health, Individual Differences, Mixed Methods

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Music and Well-Being – Mental, Physical and Social

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Background: Numerous developments in recent years that have led to more uncertain economic situations have prompted reflections about mental health. Well-being encompasses quality of life, including caring for the environment and learning various skills that encourage personal growth and development.

Aim: The aim of the project was to recognize the need to raise awareness of caring for the mental health of students, teachers and parents. It has been implemented at the Tenth Grammar School Ivan Supek under the auspices of the Ministry of Science, Education and Youth in Croatia, to raise awareness and encourage application of strategies for achieving personal well-being, to strengthen support networks, build resilience, spread knowledge, create a conducive learning and teaching environment and develop students as active citizens who will promote positive changes in society. This interdisciplinary project is based on an artistic and ethical reflection on well-being and provides an example of various "correlations across subject areas" (Curriculum, 2019).

Methods: In this prospective study data were collected and analysed through a mix of qualitative approaches, artistic methods and modern digital techniques, including observation, composition analysis and streaming analytics. Project tasks involved the group creation of posters related to the occurrence of certain emotions in selected opera arias or certain songs that, in the students' individual opinions, best described a given emotion.

Results: From 2021 to 2024, the Well-Being interdisciplinary project involved an average of 989 students and 15 professors each year. The part of the project that focused on music, with a special emphasis on how it can be used as a tool for understanding and expressing emotions, enrolled 236 students, 160 female and 76 male, with two supervising professors over a period of one year. A total of 103 third grade students presented 20 poster tasks both on school premises and the Padlet collaborative web platform in digital format. They analysed 12 recommended opera arias, including works from Lisinski, Rossini, Wagner and Verdi. The most commonly described emotional statuses were love in eight tasks sadness in six, passion in five, happiness in four, joy in four, patriotism in two, and death in one. The other 133 second grade students researched songs related to a given emotion by using an "emotion wheel" method where a song was allocated to the chosen emotion. The emotional statuses reported here included happiness in 26 tasks, sadness in 23, and fear in 12.

Conclusion: This paper, through the use of preventive programmes, emphasizes the need to address mental health issues today so that we can have a healthier society tomorrow. Mental well-being is far more than the absence of mental problems and disorders, which are increasingly observed among young people. We present the results of part of the Well-Being interdisciplinary project, based on activities that focused on music as a tool for understanding and expressing emotions. The discussions about emotions in music that took place helped students to better understand their own emotions, and the use of an "emotion wheel" enabled them to name different emotions. The project encouraged students to grow as healthy, self-confident, creative, productive and responsible individuals, capable of collaborating and contributing to the community.

Keywords: Music, Emotions, Well-Being

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The Relationship Between Social-Emotional Competences, Musical Success and Psychological Well-Being

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Background: According to the model of talent development in music (Jarvin & Subotnik, 2010), achieving expertise and artistry in classical music requires self-confidence, recognizing one's strengths and weaknesses (and capitalizing on the former), social and self-promotion skills, and "knowing how to play the game" (83). Nonetheless, the contribution of these social-emotional qualities to musical success and musicians' well-being has not been systematically examined.

Aims: Examining whether and how the social-emotional competences postulated as relevant for musical talent development in Subotnik and Jarvin's model contribute to musical success and well-being in young musicians.

Method: As part of a broader study, 210 music students (convenience sample) completed online measures of a) relevant social-emotional competences (SEC; Jarvin & Subotnik, 2010; Mutavdžin, 2025), b) psychological well-being (PWB; Ryff, 1989), c) objective musical success (OMS-48; Bogunović, 2010; Mutavdžin, 2025) and d) subjective musical success (Mutavdžin, 2025; Papageorgi et al., 2010). Several ANOVAs were conducted using three SEC groups (G_1: > 0.5 *SD* below *M*, n = 59; G2: between 0.5 *SD* below and 0.5 *SD* above *M*, n = 78; G3: > 0.5 *SD* above *M*, n = 73; M = 130.76, SD = 26.44).

Results: Statistically significant differences in favour of higher SEC groups were consistently found in subjective, $F(2, 207) = 77.91$, $p < .001$, $r = .66$, but not objective musical success, $F(2, 207) = 4.21$, $p < .05$, $r = .20$, in which G_1 differed from G_3 (MD = -4.24, $p < .05$), and G_2 differed from G_3 (MD = -4.06, $p < .05$), but G_1 and G_2 did not differ statistically significantly (MD = -0.18, $p = .999$). To ensure homogeneity of variance, SEC scores were dichotomized when examining differences in PWB (MG_1 = 45.77, SD= 9.80, nG_1 = 96; $MG2$ = 53.56, SD = 8.73, nG_2 = 114), and a statistically significant difference in favour of G_2 was found, $F(1, 208) = 37.11$, $p < .001$, $r = .39$.

Conclusions: The observed relationship between SEC scores and objective musical success – particularly the lack of a difference between G_1 and G_2 – has pedagogical implications. Regarding the relationship of SEC and well-being, in the three-groups solution, the finding that SEC G1 exhibited nearly twice the variance of the other two groups merits further research.

Keywords: Socio-Emotional Competences, Musical Success, Psychological Well-Being, Young Musicians

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Note: The analyses presented here are based on data collected for the purposes of the doctoral thesis of the first author. The results presented (beside SEC's descriptives) have not been published elsewhere.

Changes in the Reactions of People with Dementia Within and Between Individualized Music Listening Sessions

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Background: People with dementia (PwD) experience various behavioural and psychological symptoms, which negatively affect their quality of life. Listening to individualized music is a promising approach to address such issues. While implementing regular sessions of individualized music listening can be beneficial for PwD, the previous literature primarily focuses on the immediate effects of music, changes in specific outcome measures before versus after the intervention, and comparisons of intervention to control groups. However, changes over the course of an intervention, i.e. how the reactions of PwD change within and between sessions, remain underexplored. This is also the case for video analyses previously performed as part of two projects conducted in institutional (Weise et al., 2018) and home (Jakob et al., 2024) care settings, which primarily focused on the music's effects and the participants' reactions at specific points. Little is known about changes in reactions over time.

Aims: This study aims to investigate changes in the reactions of people with dementia to individualized music.

Method: A video analysis will be performed on 93 video recordings of 31 participants (with three 20-minute videos each). The reactions will be rated using a novel typology by Töpfer et al. (2024), which was specifically developed for assessing the reactions of people with dementia to individualized music. Changes in the reactions will be assessed within a session from song to song, and over the course of the six-week intervention period, with the reactions being rated on three dimensions and assigned an ideal type.

Results: The video analysis is currently ongoing. Preliminary results will be presented at the conference. We expect ideal type ratings to remain relatively stable over time, with the dimensional ratings fluctuating more. By observing changes in reactions over time, valuable insights about factors influencing change (e.g. specific lyrics, behaviour of the monitoring person) may be obtained.

Conclusions: The knowledge gained from this study will aid our understanding of changes in the reactions of people with dementia during a music listening session and over the course of an intervention period. The results may help to optimize the effects and quality of a music listening session, for example by continuously adapting the individualized playlists to the reactions of a listener as well as handling changes in the reactions of a listener.

Keywords: Cognitive Impairment, Process Research, Video Analysis

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"The Answer is Blowing in the (Wood)Wind": Inconsistent Instrument Hygiene May Be Associated with Respiratory Illness in Wind Players

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Background: Wind instruments can sometimes become contaminated with potentially harmful mould and bacteria,[1,2] and this may lead to respiratory illness in wind players if these microorganisms are inhaled during use.[3] Case reports in affected wind players suggest that respiratory health may improve when contaminated instruments are avoided and when appropriate hygiene is adopted,[4,5] highlighting the protective role of instrument hygiene.

Aims: To investigate (a) the prevalence of respiratory symptoms in wind players and non-wind controls, and (b) the association between symptoms, instrument contact, and hygiene activities (cleaning, drying, disinfecting).

Method: The participants completed a bespoke online questionnaire assessing musical biography, respiratory health, hygiene activities, and hygiene education/attitudes. The sample (female/male/other N = 117/170/1; mean age = 48.3 years) comprised wind players (N = 245; 117 woodwind, 128 brass) and non-wind controls (N = 43) recruited from German orchestras. Bayesian mixed-effects models were used to model the collected data. Evidence ratios (ER) ≥ 19 indicated strong evidence for an effect.

Results: Wind and non-wind players did not differ in age, sex distribution, instrument contact time, smoking habits, nor environmental mould exposure. In terms of respiratory symptoms, we observed strong evidence that wind players were increasingly likely to report asthma (ER = 47.58) and a diagnosed respiratory disease (ER = 22.10) compared to non-wind players. No differences were observed for other symptoms, including shortness of breath or coughing. Among wind players, hygiene routines were highly inconsistent and were at times rare or even absent; most (woodwind 86%, brass 94%) reported never disinfecting their instrument, with cleaning and drying occurring infrequently. Contrary to expectations, more regular disinfection predicted a higher likelihood of reporting symptoms (ER = 432.24), suggesting *reactive* rather than *preventive* hygiene behaviour. Receiving hygiene education was also inconsistent; 85% of wind players reported receiving no instruction about

disinfection. Receiving education appears to have desirable effects, however, as wind players who learned about hygiene considered this topic to be more essential and engaged in hygiene routines more frequently (ER > 74.68).

Conclusions: Wind players reported certain symptoms of respiratory illness more frequently than non-wind players. Contaminated wind instruments is one plausible explanation of this. Our findings suggest that hygiene behaviours may intensify only after symptoms emerge, indicating a potential misunderstanding whereby the absence of symptoms is perceived as the absence of contamination risk. We advocate for evidence-based, accessible hygiene guidelines to be embedded within all wind instrument pedagogy and encourage wind players to engage in regular instrument disinfection. Ongoing collaboration among researchers, music educators, and instrument manufacturers may help to encourage proactive instrument care and support wind players' respiratory health and long-term career sustainability.

Keywords: Wind Instrument, Respiratory Illness, Breathing, Microbial Contamination, Hygiene

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Primož Kuret Hall, Ground Floor

Oral session 12: Music and Social Contex

Chair: Katarina Lia Kompan Erzar

The Social-Emotional Skills and Well-Being of Roma Children – Can Music Make a Difference?

Blanka Bogunović[1], Ivana Stepanović Ilić[2], Anđela Milošević[2], Tara Veljković[2], Maša Brkanović[2], Emilija Maksimović[2]

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Background: Studies show that special music programmes and activities make a significant contribution to the school achievement, social bonding, self-efficacy, and emotional development of children from disadvantaged backgrounds (Hallam & Himonides, 2022).

Aims: This cross-sectional study explores music skills (MUS) mastery and relationships with social-emotional skills (SEMS) and emotional-behavioural strengths and difficulties (SD) in a group of Roma children, after their participation in music lessons based on the El Sistema-Music of Hope method, which included a variety of intensive music activities (e.g. singing, body percussion, dance, public group performances).

Method: The sample includes 190 Roma children (51.6% female), aged seven to 13 (average 10.23), from three special primary schools for Roma children in Serbia. The SEMS scale (Einpaul et al., 2024), the Strengths and Difficulties Questionnaire (SDQ) (Goodman, 1997), and the MUS Questionnaire, based on the MAP Program Curriculum (2024), were used. Twelve primary school (PTs) and four music (MTs) teachers assessed children after three to five months of teaching.

Results: Two canonical correlation analyses (CCA) were performed to identify the relationships between two sets of variables. The first examined associations between MUS and SEMS and extracted two canonical functions (CFs). The CF1 ($r = .80$) was statistically significant, Wilks's $\lambda = .246$, $F(12, 201.37) = 11.75$, $p < .001$. It indicates that higher levels of MUS (music creation and performance, music analysis, and understanding of cultural context) are associated with higher levels of self-management, emotional regulation, and assertive engagement. The CF2 ($r = .56$) was also statistically significant, Wilks's $\lambda = .687$, $F(6, 154) = 5.30$, $p < .001$. In contrast to the CF1, higher music creation and performance, combined with a lower emphasis on music analysis, are associated with higher collaboration and amity. The second CCA examined associations between MUS and emotional-behavioural strengths and difficulties and extracted two CFs. Only the CF1 was statistically significant ($r = .71$), Wilks's $\lambda = .443$, $F(15, 254.37) = 5.82$, $p < .001$, indicating that higher levels of music creation and performance are associated with lower levels of emotional difficulties and higher prosocial behaviour. Music analysis and understanding of cultural context did not meaningfully contribute to this function. Similarly, behavioural difficulties, hyperactivity, and peer difficulties show low loadings and are considered redundant within this pattern.

Conclusions: The results reflect a broad and robust overlap between all measured musical competencies and most socio-emotional skills. Next, the specific association between active music-making and a child's profile characterized by fewer emotional difficulties and stronger prosocial tendencies is established. Meaning, that a thoughtfully designed music programme focusing on children from marginalized groups can contribute to their social-emotional development and well-being.

Keywords: Musical Skills, Social-Emotional Skills, Emotional-Behavioural Difficulties, Roma Children, Teacher Ratings

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Universals and Archetypes in Music

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Background: Music – once conceived primarily as the art of tones – has, over centuries, expanded into the art of sound. From the 19thcentury onward, the discourse of *ars gratia artis* (art for art's sake) has framed music as "pure" or "absolute", evolving through Romanticism's authorial autonomy, Expressionism's formalist emphasis, and postmodernity's emancipation of sound. Each approach champions the freedom to invent new – and often deemed superior – solutions to music's mimetic origins. Yet these notions of purity and abstraction remain anchored within broader, sometimes indistinct, conceptual horizons. Technically, music has been defined via analogies with universals – planetary systems, language, architecture, logic, emotions – thus integrating epistemological frames that go beyond mere terminology. Holzer (2011) identified such analogies as "polar fields of tension" in modern music, citing comparisons with language, organism, architecture, logic, temporal structures, and textuality. This contribution surveys concepts of universals and archetypes in music theory and music history from the 18th century to present, tracing their evolution across diverse treatises. It seeks to build an epistemological framework identifying multiple levels and parameters through which music is conceptualized as a shared human phenomenon, varying across disciplinary lenses.

Method: A "thick description" approach is employed, drawing on music theory, psychology, sociology, and informatics. The study examines historical texts, theoretical treatises, and cross-disciplinary discourse. Key authors analysed include Rameau, Riepel, Marx, Jung, Lomax, Karbusický, Lachenmann, Knapp, Palmer, Sill, and Kozel.

Results:
– A refined taxonomy of musical universals and archetypes.
– An interdisciplinary mapping of how these conceptual frameworks shape professional and cultural understandings of music.
– A foundation for future research integrating musical identity across psychology, theory, and technology.

Keywords: Universals, Archetypes, Musical Form, Epistemology, Interdisciplinary Music

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Exploring Factors that Shape Early Adolescents' Interest in General Music Education

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Background: Early adolescence is a period in which students' engagement is especially sensitive to the relevance and authenticity of learning experiences. However, music lessons often struggle to

match adolescents' developmental needs for autonomy and active involvement. Research on informal and authentic music learning (Green, 2008) and flow-based engagement (Csikszentmihalyi, 2014) highlights the importance of meaningful participation. Building on these insights, an Orff-Schulwerk-inspired model (Regner, 1996) was integrated into the Slovenian national curriculum in general music education.

Aims: The study aimed to examine which factors shape early adolescents' interest in general music lessons when an authentic, experience-based pedagogical model is introduced. A further aim was to explore how students respond to active musical tasks compared to more traditional forms of instruction.

Method: The study involved 39 ninth-grade students (aged 14–15) from two Slovenian public schools. Data were collected through group interviews, a repeated 10-point interest scale, student diaries, online surveys and video observations. Qualitative data were analysed using open coding, while quantitative data were summarized with descriptive statistics and nonparametric tests. The design reflects principles of self-determination theory (Ryan & Deci, 2000), which emphasizes autonomy, competence and relatedness in sustaining motivation.

Results: Analysis revealed four interrelated factors that strongly influenced students' interest: (1) authentic musical activities involving performing, creating and listening; (2) collaboration with peers; (3) a supportive and emotionally safe classroom climate; and (4) the role of the music teacher. Students described creative work as motivating and emotionally engaging, and they valued opportunities for co-creation and group interaction. Interest increased during activities that combined performance, improvisation and movement, and declined during remote learning or tasks perceived as less meaningful. The contrast between high student engagement and the teacher's effort to manage classroom dynamics was notable.

Conclusions: The findings suggest that music lessons grounded in authentic participation – where performing, creating and listening occur in interconnected ways – can enhance motivation, support personal and social competencies and strengthen students' sense of belonging. The study points to the importance of teacher competencies and classroom climate in sustaining engagement. These insights have implications for curriculum development, teacher training and music programmes that respond to adolescents' developmental needs.

Keywords: General Music Education, Early Adolescence, Authentic Music Education, Orff-Schulwerk, Student Interest

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Music Criticism and Psychology in German-Language Discourse Around 1920

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Background: From around 1900 onwards, a marked increase can be observed in German-language writings devoted to the theoretical reflection on the phenomenon of music criticism. Not only did music critics increasingly subject their own practice to critical scrutiny, but musicians, composers, and musicologists likewise devoted growing attention to music criticism. This expansion of discourse can be understood both as an expression of the rising importance of the musical-critical public sphere and as a reaction to the pluralization of musical styles and aesthetic positions, which called for conceptual and methodological clarification. Within this context, a thematically diverse critique of music criticism (metacriticism) emerged, in which the psychological prerequisites and conditions of musical judgement were explicitly reflected upon.

Aims: The aim of this paper is to reconstruct historical positions that have received little attention to date and that engage with psychological aspects of music criticism. Central to the discussion are questions concerning the role of perception, experience, expectations, and individual dispositions in the process of critical musical judgement. The paper examines how contemporary authors sought to distinguish between subjective and objective components of musical evaluation, and which consequences they derived from these considerations for musical life and the music profession.

Main contribution: For the first time, key contributions to the critique of music criticism around 1900 are analysed from an explicitly psychological perspective and brought into a shared argumentative framework. Drawing on selected texts by, among others, Paul Bekker, Rudolf Cahn-Speyer and Hermann Springer, the paper demonstrates that musical judgement was already understood, prior to the establishment of modern music psychology, as a complex psychological process mediating between individual perception, emotional response, and social normativity. The paper thus shows that these metacritical approaches anticipated central questions of contemporary music psychology.

Implications: The historical analyses reveal that psychological reflections on musical judgement were not a late addition, but an integral component of complex theories of music criticism around 1900. In doing so, the paper not only recalls a quantitatively substantial body of texts, but also encourages reflection on present-day practices of music criticism in light of their psychological foundations.

Keywords: Music Criticism, Value Judgment, Aesthetics, Psychology, Apperception

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Multimodal Communicative Scaffolds in Music and Language

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Background: Scholars have addressed the evolutionary relationship between music and language from various perspectives. A longstanding debate has focused on whether they emerged together or, alternatively, which one appeared first and how it may have given rise to the other. In this context, Brown (2000) proposes that music and language originated from a communicative precursor – musilanguage – that encompassed both emotive and referential functions, with music ultimately specializing in emotional communication and language in referential communication. Similarly, Mithen (2006) argues that both domains arose from a common ancestor exemplified by the vocalization "hmmmmm", a complex, holistic system encompassing manipulative, multimodal, musical, and memetic intentions. He hypothesizes that language emerged when these holistic vocal expressions were segmented into discrete units, giving rise to a system of referential communication, while music evolved to convey emotions. A key limitation of these models is their exclusive focus on vocal communication, which overlooks other modes of comparison that may advance our understanding of the shared origins of these domains.

Aims: This paper aims to advance the explanation of the commonalities between music and language beyond a purely vocal emphasis. It draws on the idea that language is not limited to speech, but can exist as spoken or signed language, using the voice, hands, and face in varied combinations (Arbib, 2013). It also incorporates the view that language is learned through face-to-face interaction, consisting of a sequenced exchange of actions (Levinson and Holler, 2014). Likewise, this paper points out that although music can be described as a structured sequence of sounds, it also depends on interpersonal coordination involving a wide range of motor and cognitive skills, while simultaneously serving as a medium for complex forms of social interaction (Cross, 2008). In sum, this paper argues that an exclusive focus on the sounds of music and the words of speech overlooks other crucial cognitive processes underlying both cultural practices.

Main Contribution: To integrate the approaches discussed in the previous section within a more comprehensive framework. To this end, it develops the concept of multimodal communicative scaffolds in music and language, incorporating insights from embodied cognitive sciences as well as ethnographic studies across diverse cultures.

Implication: This framework may provide a significant basis for exploring music and language as interdependent dimensions of human social cognition and behaviour, thereby opening new avenues for interdisciplinary research on the role of music and language in processes of multimodal learning in cross-cultural contexts.

Keywords: Music and Language: Multimodal Communicative Scaffolds, Social Interaction, Multimodal Learning

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13:00 – 14:00

Parallel oral sessions 13 – 16

Breda Oblak Hall, 3rd Floor

Oral session 13: Music and Social Context

Chair: Katarina Bogunović Hočevar

Increasing Social Cohesion Through Improvisation in Fifth Grade Music Classrooms

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Background: Music remains one of the most effective tools for enhancing social interaction, especially group music activities (Junqi & Nasri, 2025). Research shows that music improvisation activities can promote well-being, a sense of belonging, and transferable skills of social interactions (Siljamäki, 2021). Furthermore, Verneert (2023) believes that social interaction while creating a common meaning in music is an essential aspect of improvisation.

Aims: The aim of the research was to examine how implementing music improvisation activities in fifth grade music lessons fosters peer connectedness, perceived classroom climate, and pupils' sense of belonging.

Method: Within an action-research design in one fifth grade classroom, 16 music lessons were modified to include different types of improvisation activities from September 2025 to June 2026. Music lessons were conducted by the school music teacher, and the researcher collected data (observation notes) through non-participant observation. Peer relations and classroom climate were assessed pre- and post-implementation of improvisation activities using the questionnaire My classroom (Zabukovec, 1998), an adapted BELONG scale (OECD, 2019) and a sociometric test. In addition, pupils participated in a focus group interview pre- and post-action cycles.

Results: Data collection is ongoing. Pre- and post-changes in classroom climate, sense of belonging, and social relationships will be compared to qualitative findings of focus group interviews, alongside notes of non-participant observation. Initial findings suggest that music improvisation activities promote social cohesion, which is realized through positive classroom climate, curiosity, engagement, and positive peer interactions.

Conclusions: The impact of music improvisation on social cohesion is explored in relation to existing research on music improvisation in educational settings. The results may provide a rationale for including more improvisational activities into the elementary school music classroom.

Keywords: Music Education, Music Improvisation, Peer Relations, Classroom Climate, Sense of Belonging

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Collaborative Pedagogy in Music Education: A Study of Project-Based Learning via Musical Theatre

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Background: In recent decades, project-based learning has become one of the key innovative approaches in contemporary pedagogy, actively involving students in a learning process based on exploration, creation, and collaboration. In music education, this approach stands out as it combines artistic creation with the development of a broad spectrum of competencies, ranging from musical performance skills to social, creative, and communication abilities. Creating a musical provides students with the opportunity to experience learning as a comprehensive, interdisciplinary process in which they are active co-creators rather than merely passive recipients of knowledge (Biesta, 2022). Within this framework, project-based learning is designed to enable students to independently explore specific problems or challenges, with the final product – in this case, a musical – serving as the central vehicle for learning (Thomas, 2000). Tobias et al. (2015) highlight that students often volunteer to participate in projects outside of regular class hours because they find personal meaning and creative challenge in them. Contemporary research emphasizes that such approaches promote deeper and more lasting learning, as knowledge is acquired in authentic contexts and supported by active student engagement (Condliffe et al., 2017). Musical projects, such as musicals, embody this methodology by combining artistic experience, collaborative work, and process-oriented learning with the acquisition of transferable knowledge applicable to everyday life.

Aims: The objective of this study is to examine how pupils involved in creating and performing a musical, and students engaged as mentors, navigate the preparation and execution of a musical, along with the competencies they develop during this process. In particular, the study will investigate how emotional and social skills, and the satisfaction of fundamental needs (autonomy, competence and relatedness) change among pupils and students involved in preparing the musical.

Method: The study involves 46 pupils from the Horjul department of the Vrhnika Music School participating in the creation of a musical theatre performance. Additionally, six students from the University of Ljubljana's Academy of Music (UL AG) and one from the Ljubljana Academy of Theatre, Radio, Film and Television (UL AGRFT) will actively participate as mentors during rehearsals from December 2025 to April 2026. Data will be collected through focus groups conducted after the performances: five groups of about nine pupils and one group of the participating students ($N = 7$). Qualitative analysis will focus on themes related to the PERMA model of well-being (Seligman, 2011), performance anxiety, perceived competence and emotional and social skills. These constructs will be explored through semi-structured interview questions.

Results: The results are expected to be available in May 2026. They will provide insights into participants' and students' experiences of, and potential benefits from, engaging in project-based learning. The analysis will highlight the influence of participation in musical preparation and performance on social-emotional skills, performance anxiety, perceived competence, and psychological well-being.

Conclusions: This research will improve our understanding of the educational impact of project-based learning in music education, emphasizing how creating musical can develop skills and promote well-being. It will also provide practical recommendations for implementing similar projects in educational settings to encourage all-round student development.

Keywords: Music Education, Project-Based Learning, PERMA Model, Focus Groups, Qualitative Content Analysis

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Micro-Strategies for Psychological Safety in Inclusive Children's Opera Rehearsals: A Brundibar Case Study Within the Music of Hope Programme (Serbia)

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Background: The Music of Hope programme (Belgrade, Serbia), inspired by El Sistema principles, aims to support social inclusion by developing children's agency, well-being (Ascenco et al., 2017), sense of belonging, and collaborative music-making through intensive ensemble work (Leman, 2016). In mixed cohorts, rehearsal pressure, mistakes, teasing, and shame can undermine psychological safety and continuity of participation, especially for children from marginalized backgrounds. This case study examines whether short, repeatable micro-strategies embedded in rehearsal flow can provide a practical mechanism for sustaining inclusion-oriented methodology in everyday practice.

Aims: The study examined the feasibility and effects of an eight-week micro-strategy protocol integrated into children's opera (*Brundibar*) rehearsals, focusing on strengthening psychological safety (Edmondson, 1999) and belonging, supporting self-regulation when teachers correct music- and stage-related mistakes (i.e. faster return to the task after correction), developing cooperative agency (clear help-seeking, peer support, constructive feedback), and reducing escalation triggered by peer teasing and mutual mocking among children through rapid repair and re-coordination.

Method: Over eight weeks, brief, standardized rehearsal micro-activities were implemented at the beginning of each joint rehearsal with a mixed, inclusive cohort of 65 children and adolescents aged eight to 18. The group combined participants from smaller and rural communities, children living in extreme poverty, and children from more privileged backgrounds, with mixed-gender participation.

Each element lasted approximately three to five minutes and followed the same order: a student emotion self-rating on a visual board, a short reminder of safe-space norms, and a scene-linked micro-dialogue based on the opera narrative (emotion recognition and an agreed team response). Each week, one targeted micro-behaviour was introduced with an agreed "micro-sentence" (e.g. clear help-seeking, naming emotion and taking a brief pause, breathing and retrying with a small step, offering help, expressing gratitude, setting boundaries and repairing after mockery, using a re-coordination cue, giving feedback in two steps) and then deliberately practised during music-and-stage tasks. Data included student boards at the start and end of rehearsals (emotions and usefulness ratings), documented via photographs, and weekly short-form observation notes and progress ratings for each student completed by two raters (one to four domain ratings with brief behavioural evidence and a process checklist).

Results: The protocol was feasible in real rehearsal conditions, and students quickly adopted shared norms and micro-sentences. Two-rater weekly records indicated increases in cooperative agency, including more frequent and more specific help-seeking and peer support, improved acceptance of correction, and faster return to task after errors. Observations also documented fewer and shorter disruptions linked to teasing and shame-related withdrawal, alongside more effective "boundary + repair" responses. Student self-ratings suggested greater emotional settling by the end of rehearsals and increased perceived usefulness of the routine over time.

Conclusions: This *Brundibar* case study suggests that short, repeatable micro-strategies that can be implemented within existing rehearsal conditions may strengthen psychological safety and collaborative musicianship in inclusive educational performance settings while maintaining artistic demands, thereby supporting the social sustainability of musical participation.

Keywords: Psychological Safety, Socio-Emotional Skills, Collaborative Musicianship, Music in Educational Settings, Music and Well-Being

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Teaching Music to Children with Autism Spectrum Disorder: From Individual to Group Setting – A Case Study

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Background: This paper presents the third part of the musical training and intervention for a child with Asperger's syndrome (AS), marking a transition from individual music lessons to inclusion in larger musical groups, with a goal to develop her independence and social skills. Two years of individual integrative music-psychological approach (IMPA) work enabled the child to enrol in a regular elementary school with a chaperone, despite initial recommendations for special education (Knežević, 2026). The group phase included choir inclusion and participation in the rehearsals and performance of a children's opera. In both phases, individual and group, the emphasis was on the child-teacher-parent triad relations and collaboration relying on the IMPA and the practice of singing, movement, and acting.

Aims: This paper aims to present the outcomes of social inclusion through music for the development and well-being of the child with developmental difficulties, and to show the benefits of the large group setting for enhancing social-emotional skills in a musical setting. The analysis of the outcomes will be explained within the framework of the social-emotional learning CASEL model (Durlak et al., 2024).

Method: The subject of this case study is a seven-year-old girl, Ana, from a single-parent household headed by her mother, who is highly cooperative and engaged. Adopting a participatory research framework, the author served in dual roles as researcher and practitioner, drawing on extensive experience as a cello pedagogue, choirmaster, and music educator within social inclusion initiatives. The intervention in this phase of teaching/learning/coaching was focused on the participation in musical activities spanning the trajectory from initial choral rehearsals to a full-scale theatrical production over a 12-month period. Longitudinal observation was facilitated by the child's consistent attendance, including intensive rehearsal cycles ranging from three to six hours during the final production phase.

Results: After sustained effort and the application of appropriate pedagogical approaches, significant progress was achieved in the child's social and emotional adaptation, including in establishing relationships, taking responsibility for the tasks given and managing emotions. These results were most clearly manifested through the girl's engagement in an opera production, where she successfully performed two solo roles. The girl developed the capacity to fully independently attend multi-hour rehearsals (lasting up to six hours), with adequate use of breaks and maintaining attention. Improvements in social-emotional skills were monitored through the CASEL areas of competence. At the end of a process Ana showed high self-management while demonstrating exceptional emotional stability and composure during the creative process, along with self-regulation of impulses. Self-awareness progressed significantly and self-confidence stabilized. Destructive self-criticism was replaced by a more objective awareness of personal strengths and emotional states. Social awareness improved to a high degree of empathy and social intelligence. Ana displayed an understanding of and respect for others' perspectives in several cases when discussions among children arose. Relationship skills mostly developed. She maintained a high level of cooperation within the group, and contributed effectively to the collective through her constructive ideas, respect for diverse opinions and patience for others' mistakes. Ana learned to make responsible decisions and performed consistently constructive approaches to problem-solving rather than her previous maladaptive behavioural patterns.

Conclusions: The implementation of IMPA created a safe framework where social-emotional development flowed naturally, allowing the child to fully integrate among peers, to accept them, and to be accepted. Music played a special role; choir participation provided a necessary sense of acceptance and shared identity. Conversely, the demanding work of preparing a children's opera catalysed the strengthening of her independence from her mother and teacher. By taking on stage responsibilities through long-term practice, she developed a level of independence that exceeded initial expectations, transforming uncertainty into authentic stability.

Keywords: IMPA, Individualization, Asperger's

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Marijan Lipovšek Hall, 1st Floor

Oral session 14: Music and Social Context

Chair: Leon Stefanija

Does Playing Music Predict Young Adults' Political Attitudes? Findings from the Socio-Economic Panel Study (SOEP, 2001-2021)

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Background: Leisure activities such as playing music, music listening or playing sports can enrich the lives and influence the development of young people. They have both personal and societal value and might, therefore, interact with political socialization. Political attitudes, however, have only marginally been explored in association with adolescent leisure activities as potentially modifying factors.

Aims: The central goal is to explore the associations between leisure activities, including sports, playing music and music listening on the one hand, and political attitudes in the transition from adolescence to adulthood, on the other. Subsidiary goals entail the contributions of sociographic background variables, such as parental education and political attitudes

Method: We used a longitudinal data set as supplied by the German Socio-Economic Panel Study (SOEP; *N* = 4.821). This set entails data from both the young generation target group and their mothers and fathers. We applied linear regression models in which the extent of leisure engagement in playing music, music listening, and playing sports predicted leftist vs rightist political attitudes of the same individuals as measured once after they reached the age of 18. These models also included parental information.

Results: We observe differential patterns of association across analyses. The most consistent finding was that playing music indicated significantly higher leftist and lower rightist political attitudes after controlling for potential confounders, including parental political attitude.

Conclusions: These results suggest a significant association between playing music in adolescence and political attitude of the same individuals as young adults. In light of previous work, which indicates a substantial genetic and family influence on the formation of political attitudes, the observation that playing music might be an independent modifiable factor calls for in-depth investigations of adolescent musical behaviours and activities in the formation of political attitudes.

Keywords: Adolescence, Playing Music, Music Listening, Sports, Political Attitudes

Musical Neuroaesthetics

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Background: Contemporary cognitive neuroscience shows that musical stimuli systematically shape the brain dynamics of expectation and surprise, activate reward-related responses, and engage neuroendocrine and autonomic regulation (Koelsch, 2014; Chanda & Levitin, 2013). In the past decade, hyperscanning approaches have enabled the simultaneous measurement of brain activity in multiple individuals during real interactions, making musical performance and live listening situations

valuable models for studying social synchronization and collective neural dynamics (Sänger et al., 2012; Acquadro et al., 2016). Within this framework, musical neuroaesthetics extends beyond the question of aesthetic beauty toward mechanisms of musical preference and regulation. In particular, aesthetic preference may emerge through recurrent interactions between stylistic precursors (learning, habits, cultural patterns), predictive structures in music, bodily responses, and reward-related neurochemical processes.

Aims: The aim of this paper is to examine musical neuroaesthetics, based on an integrative review of the literature, as a biopsychosocial model that connects four domains of psychophysiological regulation: neuroendocrine reward mechanisms related to pleasure, tension, and resolution in music; stylistic precursors and learned listening habits shaping musical expectation and liking; oscillatory dynamics (EEG bands and coherence) as measurable correlates of attention, emotional regulation, and temporal coordination; and social synchronization as a defining characteristic of live musical interaction.

Main contribution: The paper outlines a conceptual framework linking musical style, predictive processing, neuroendocrine reward, and the reinforcement of preference. It proposes a model in which musical preference is understood as a learned mapping of reward prediction and physiological regulation. Such preferences may emerge where predictive musical structures reliably generate rewarding and regulatory effects, including arousal, relaxation, tension, and social belonging. Particular attention is given to how different musical styles may generate distinct forms of aesthetic reward and bodily regulation, and how listeners gradually acquire these responses through experience, memory, and cultural context. From this perspective, musical taste can be interpreted as a learned map of neurobiological reward associations (Salimpoor et al., 2011).

Implications: The proposed model has implications at scientific, artistic, and health-related levels. Scientifically, it supports a shift from isolated laboratory stimuli toward ecologically valid paradigms, including hyperscanning and live musical interaction, where neural, physiological, and subjective processes can be studied simultaneously. Artistically, it offers a framework for understanding collective states in performance, including tension–resolution dynamics, micro-asynchronies, and temporal flow. In health-related contexts, it supports the use of music as a non-pharmacological approach to the regulation of stress, emotional states, and social cohesion, while emphasizing the importance of personalization, listening context, and rigorous methodological controls.

Keywords: Musical Preference, Reward Processing, Predictive Processing, Hyperscanning

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Reducing Barriers to Classical Music Listening: Audience Engagement through the "1, 2, 3 … bis!" Podcast of the Slovenian Philharmonic

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Background: Declining attendance at classical music concerts and the ageing of concert audiences remain significant challenges for symphony orchestras worldwide. Similar trends can also be observed in Slovenia, where the Slovenian Philharmonic faces the challenge of maintaining its existing audience while attracting younger generations and overcoming perceived barriers to classical music listening. From the perspective of the psychology of music, such barriers are closely related to the ways in which classical music is perceived, interpreted, and experienced within different listening contexts. Previous research has shown that contextual framing, prior information, and narrative explanation can significantly influence listeners' understanding of musical works, emotional responses, and involvement with music (Clarke, 2005; Margulis, 2014). In this sense, digital media formats may function not only as communication tools but also as mediated listening contexts that shape how audiences approach classical music. In the 2023/24 concert season the Slovenian Philharmonic introduced the video podcast "1, 2, 3 ... bis!", hosted by Tilen Artač. The podcast was designed to present classical music through informal conversations between Slovenian Philharmonic musicians (choral singers, orchestral players and artistic leaders) and well-known public figures with ties to classical music, combining humour, contextual explanation and musical interaction.

Aims: The study investigates whether the "1, 2, 3 ... bis!" podcast of the Slovenian Philharmonic may function as a mediated listening context that helps reduce perceived barriers to classical music listening and supports audience engagement with classical music. Specifically, the research examines whether the introduction of the podcast was associated with increased audience attention, interaction, and indicators of participation in classical music events.

Method: The study was conducted as part of a broader research project examining communication practices and audience engagement strategies in cultural institutions. The analysis combined several sources of data:

- descriptive analysis of views of the first nine podcast episodes across digital platforms;
- analysis of audience responses to short podcast excerpts published on TikTok, Facebook and Instagram;
- analysis of changes in subscription sales and single-ticket purchases;
- two semi-structured in-depth interviews with Slovenian Philharmonic employees responsible for marketing and communication and ticket sales.

Importantly, the interviewed employees were not involved in the development or production of the podcast, allowing for a more independent perspective on its perceived role within the institution's audience communication.

Results: The findings indicate substantial audience interaction with the podcast and its derivative short-form video content. Short video excerpts achieved particularly high reach and engagement on social media platforms, often outperforming regular institutional posts. Interview data suggest that the podcast contributed to contextualizing the classical repertoire and presenting musicians in a more relatable manner. Over the period the podcast aired, the Slovenian Philharmonic also recorded growth in several behavioural indicators, including increased website traffic, higher subscription sales, and a rise in single-ticket purchases compared to the previous season.

Conclusions: Taken together, these findings suggest that video podcasts may function as psychologically relevant listening contexts that shape how audiences approach, understand, and connect with classical music, and that they may reduce perceived barriers to listening. By combining narrative framing, humour, familiar public figures, and musical interaction, such formats may reduce symbolic distance between cultural institutions and audiences and strengthen connections between

digital media consumption and live musical participation. The study contributes to the psychology of music by highlighting how mediated listening contexts may shape listeners' relationship with musical repertoire in contemporary digital environments.

Keywords: Classical Music, Podcasts, Music Perception, Musical Engagement, Listening Context

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Trio Lorenz Hall, 1st Floor

Oral session 15: Music and Well-Being

Chair: Kaja Korošec

The Mysterious Effects of Standing Bells: Do They Activate a Prenatal Schema?

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Background: Standing (singing, Tibetan, Himalayan, Japanese, Buddha) bells (bowls, gongs, rin) accompany meditation, healing rituals, and music therapy. Their positive effects on health and well-being include deep relaxation (less stress, tension, fatigue, cortisol, heart rate, blood pressure), positive emotion (less negative), pain management, better sleep, stimulation of natural healing, and mental clarity (mindfulness). They are believed to promote spiritual awareness and higher states of consciousness (Goldsby et al., 2022), create a sense of sacred space, and evoke spiritual connection, transcendence, cosmic harmony, and universal interconnectedness (Lopez, 2018).

Aims: To understand the medical, psychological, and spiritual effects of standing bells.

Main contribution: The slowly changing sound attracts attention to the proximal stimulus (spectrum), not distal (bell); sound is not localized (Carvajal et al., 2024). A sensation of floating or that of a "sound bath" (detachment, immersion, weightlessness) may be evoked by the slowly changing relative salience of spectral and virtual pitches (cf. Terhardt et al., 1982). A prenatal schema may be activated, characterized by dull light (e.g. a dark room with candles), dull sound (reduced high-frequency energy), and proximal perception, triggering feelings of floating (weightlessness), security (fearlessness), and belongingness (being part of and related to a larger entity). That may help body and mind to self-heal. The foetus perceives the lower partials of the maternal voice; higher frequencies are inaudible due to low-pass filtering of amniotic fluid and body tissue. Similarly, standing bells produce fewer and lower audible partials than hanging bells due to their hemispherical shape and the mallet's rubbing action or gentle impact (Terwagne & Bush, 2011). The high-frequency energy that characterizes other musical instruments (caused by impacts, stick-slip mechanisms, buzzing lips, etc.) is absent.

Implications: Unrecognized by patriarchal psychological science, but founded on similar empirical methods, foetal psychology has the potential to explain important aspects of human behaviour and experience.

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Emotion Regulation Through Everyday Music Listening: Experience Sampling of European Youth

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Background: Music listening is among the most common resources used by young people for emotion regulation (Saarikallio & Erkkilä, 2007), yet real-time evidence on how youth regulate emotions through music remains limited. Experience sampling via MuPsych can capture listening episodes *in situ* (Randall & Rickard, 2017), but large-scale, cross-cultural applications among European youth are lacking. Understanding which strategies young people deploy and their effectiveness is key for leveraging music as a well-being resource (Baltazar & Saarikallio, 2016).

Aims: Within the ERC-funded MUSICONNECT project, this study investigates how European youth aged 15–25 regulate emotions through everyday music listening: which emotional reasons they report, which strategies they employ, and how successful these are – indexed by self-reported goal achievement and observed affective change.

Method: The MuPsych app (Randall & Rickard, 2017) was designed to capture real-time and ecologically valid data from everyday music listening episodes. The current study was presented through MuPsych in 15 languages, and included participants aged from 15 to 25 years across Europe. At music onset, the app captures valence, arousal, tension, intensity of a discrete emotion state, and emotional aims of the listener. These same measures (valence, arousal, tension, intensity) are taken again after five and 20 minutes of listening, to assess change in affective states. Participants select their listening reason from around 10 categories, including emotional reasons such as relaxing, boosting energy, or creating a new mood. When an emotional reason is selected, they indicate a strategy from 25 strategies in five categories – "Distracting myself", "Entertaining myself", "Focussing on my thoughts", "Focussing on my feelings", and "Focussing on my body". Success is indexed dually: self-reported goal achievement and calculated affective change. Music ratings, contextual variables, and individual traits (e.g. DASS-21) serve as predictors in multilevel analyses.

Results: Data collection is ongoing. Preliminary findings from early data suggest approximately 40% of listening experiences involve an emotional reason, with relaxation and energy-boosting most prevalent. "Distracting myself" is the most frequently reported regulation strategy category, while "Focussing on my body" is the least common. Relaxation-related episodes often involve distraction or focusing on feelings; energy-boosting episodes more frequently involve entertaining strategies. Some categories appear more successful for specific aims, but full inferential analyses will be presented at the conference with larger samples.

Conclusions: This study offers an ecologically valid, Europe-wide picture of how young people use everyday music for emotion regulation. The 15-language, multi-country design enables European-level conclusions aligned with MUSICONNECT's youth empowerment aims, and can inform guidelines for adaptive musical self-regulation for educators, clinicians, and youth workers.

Keywords: Experience Sampling, Emotion Regulation, Everyday Music Listening, European Youth

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The Role of Music Listening in Supporting Identity in Women Undergoing Treatment for Breast Cancer

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Background: Breast cancer treatment is not only a health issue, but also a biographical disruption that may affect personal identity. While music has been widely studied as a mechanism for emotion regulation (Bradt et al., 2013; Särkämö et al., 2008), less attention has been given to its possible role in supporting identity coherence during the cancer trajectory. The Adaptive Functions of Music Listening Scale (AFML) includes an Identity subscale representing the extent to which music listening expresses, reinforces, and shapes self-understanding.

Aims: This study examines whether music is associated with identity-related functions of music in women undergoing surgical and adjuvant treatment for early-stage breast cancer. A secondary aim is to explore differences between women receiving a structured music-listening intervention and those undergoing standard oncological care.

Method: A randomized clinical design was implemented in women aged 18–65 years with a first-time diagnosis of early invasive breast cancer at University Hospital for Tumours, Sestre milosrdnice University Hospital Centre, Zagreb, Croatia. Participants were allocated to either an intervention group that received a music listening intervention in addition to standard treatment or a control group that received standard treatment. The music listening intervention was delivered during the perioperative hospital stay and early chemotherapy phase using a structured music listening protocol. Participants completed the Adaptive Functions of Music Listening Scale (AFML) at defined assessment points during treatment. The Identity subscale of AFML assesses agreement with statements reflecting on music as a fundamental part of the self, an expression of personal identity, and a resource for self-understanding (Daykin et al., 2007; Groarke & Hogan, 2018).

Results: A total of 101 women diagnosed with early-stage breast cancer participated in the study, ranging in age from 33 to 65 years. Statistical analyses are now in progress since the data collection has been completed. The results will examine the distribution of identity-related music-listening functions and potential differences between the intervention and control groups across defined assessment points.

Conclusions: Beyond emotional management, listening to music may support identity coherence during breast cancer treatment. Incorporating identity-sensitive perspectives into music-based supportive oncology interventions may improve both conceptual insight and clinical relevance.

Keywords: Breast Cancer, Music Listening, Identity, Oncology, Supportive Care

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Feeling Good, Doing Well: Music Listening as a Resource to Support Hedonic and Eudaimonic Well-Being

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Background: Well-Being can be conceptualized as including hedonia (feeling pleasure, avoiding pain) and eudaimonia (living a meaningful life). Music listening has been identified as a source of pleasure and as a tool for coping with negative emotions (Baltazar & Saarikallio, 2016) and its role on self-development and identity construction has been theorized (e.g. Elvers, 2016). However, the literature tends to lean more on the hedonic aspects of music listening. Research still lacks an empirical-based account on the effects of music on hedonic and eudaimonic well-being and on how these are interrelated.

Aims: This study aims to understand how music listening can support hedonia and eudaimonia and to identify contextual (situation and goals) and individual (emotional competences) factors that facilitate successful achievement of hedonia and eudaimonia through music listening.

Method: A qualitative method was adopted for this study, and data was collected from 15 participants through semi-structured interviews. The interviews focused on uses of music in daily life, their effects on well-being (hedonic and eudaimonic), contextual variables and individual variables (including emotional skills used). Thematic analysis with an inductive approach will be used to identify the relevant themes across the interviews.

Results: Based on the interviews conducted, we expect to find hedonic uses related to emotion regulation and sensation seeking and eudaimonic uses related to identity, value strengthening, and goal strengthening. Due to the data-driven approach of the study and lack of a music-based model of hedonia and eudaimonia, no hypotheses are generated at this point.

Conclusions: The joint investigation of both hedonic and eudaimonic well-being will enable a more holistic understanding of music listening as a salutary resource. Previous research has highlighted the importance of considering the differential contributions of hedonic and eudaimonic motives for the support of well-being (Giuntoli et al., 2021).

Primož Kuret Hall, 1st Floor

Oral session 16: Music and Well-Being

Chair: Cloie Dobias

Late Adolescents as Advisors: A Developmental Perspective on Implicit Theories of Music-Based Emotion Regulation

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Background: Late adolescence is a developmental period marked by increasing autonomy, identity consolidation, cognitive growth, and intensified peer relations, while also representing a demanding transition that may challenge psychological well-being (Zarrett & Eccles, 2006). This period is also marked by advances in emotional regulation. Within this context, music has been recognized as an accessible and effective everyday resource for supporting psychological well-being, particularly through its social and intrapersonal functions (Habe et al., 2023; Saarikallio & Erkkilä, 2007).

Aims: Building on this developmental framework, the study examined how adolescents, positioned as "advice-givers to young people", conceptualize music as a means of emotion regulation, with attention to developmentally specific aspects of their responses.

Method: Data were collected via semi-structured interviews conducted via Zoom with 18 Serbian adolescents aged 16 to 18 (nine female, nine male). Interviews lasted 50–140 minutes (M ≈ 70). Data were analysed using reflexive thematic analysis.

Results: Participants' responses to the final interview question inviting reflection on music's significance and advice on using music to influence moods and emotions were analysed, revealing several distinct perspectives. Firstly, Metaperspective on Personal Emotional Regulation emerged, reflecting adolescents' implicit theories about music's emotional impact and normative views about what one "should", "can", or "should not" do. In their advice, they emphasized that music can support emotional well-being but may also intensify undesirable feelings. While many valued engaging with unpleasant emotions through music, some advocated avoiding them. Secondly, Sources of Advice were grounded in personal experience, complemented by peer observations, broader social contexts, and occasionally formal music education, reflecting the integration of multiple knowledge sources in their advice. Finally, Social and Identity-Related Significance of Music was highlighted in their advice through references to music's role in peer validation, belonging, and identity exploration, with adolescents frequently emphasizing individual differences and tolerance toward diverse musical preferences and ways of using music. Despite this openness, they often viewed their own experience as more reliable, consistent with late-adolescent identity consolidation.

Conclusions: The findings suggest that adolescents hold nuanced and developmentally informed views about music as a tool for emotion regulation. Their advice reflects implicit theories integrating personal experience, social observation, and emerging identity processes, highlighting awareness of both benefits and potential risks of using music to shape emotional states. These insights underscore the importance of situating musical engagement within broader psychological and social systems when examining adolescents' emotional well-being.

Keywords: Adolescence, Emotion Regulation, Music Use, Implicit Theories, Qualitative Research

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Music as Access to Archetypal Content: A Systematic Dream Analysis Approach

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Background: This research proposal explores whether music can access archetypal content, akin to how dreams evoke universal themes in the human psyche. Unlike Jung's outdated archetypal definitions, this study employs a contemporary approach, focusing on fundamental relational patterns recognized across cultures, rooted in shared early human experiences (Roesler, 2012).

Aims: The project has two main objectives: first, to assess if archetypal patterns found in dream series (Roesler, 2019) also appear in music-elicited imagery, and second, to refine the definition of archetypes by applying Systematic Dream Analysis (SDA) to musical imagery.

Main contribution: The methodology integrates principles from psychology, musicology, and psychotherapy, employing SDA alongside thematic analysis to explore how music elicits psychological and emotional responses, and how these responses relate to personal narratives. The research will involve two qualitative studies: one focusing on the identification of archetypal patterns in music-elicited imagery and the other examining how these patterns correlate with individuals' life stories.

Implications: The study is grounded in interdisciplinary methods and will contribute to both therapeutic practices and the academic understanding of music's role in accessing deep psychological content. It also considers gender and cultural diversity to ensure comprehensive results. By advancing the understanding of music's therapeutic potential, this research aims to enhance therapeutic practices and contribute to the broader discourse on the psychological impact of music.

Keywords: Music Emotion, Archetypes, Dream Analysis

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Musical Emotions and Semantics

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Background: The term musical emotions is used within the terminological frameworks of various disciplines and carries different meanings. These include the emotions conveyed by the text of a musical work; the emotions aroused in the listener by that text (Hunter, 2010); and the emotions associated with the perception of music as a work of art.

Aims: To determine the place and role of emotions in the formation of musical semantics. Although the statement that "music is the language of emotions" has come to be regarded as metaphorical, its limits still require clarification, since in some contemporary research it continues to be understood literally.

Main contribution: Based on the results of experimental observations (Hunter, 2010), one must conclude that the number of emotions a listener can adequately "decode" in music is extremely limited. At the same time, among the emotions elicited by music, there are both genuinely aesthetic emotions, determined by the structure of the work, and a vast number of entirely accidental ones. A critical analysis of studies linking the expression of emotions to musical semantics – such as Juslin's idea of three types of encoding and Kholopova's distinction between mimetic and energetic emotions – leads to the conclusion that the core of musical meaning is constituted not by basic or mimetic emotions, but by aesthetic emotions. A contemporary justification of the nature of aesthetic ("intelligent") emotions and of their genesis develops the approaches of V. Kandinsky and L. Vygotsky.

Implications: Having outlined the invariant core of musical semantics, we associate it with the action of specific artistic musical emotions that transform "everyday" emotions and generate the joy of communication and co-creation. These emotions are the core of the entire emotional spectrum conveyed and aroused by music. Therefore, the principal role in the perception of music is played by aesthetic emotions, which, first, transform the emotions represented in the text and, second, accompany the perception of music as structured beauty. The essential core of musical semantics lies not in the expression of extramusical phenomena, including ordinary emotions, but in beauty as information: (a) about material organized into style; (b) about the perfection of artistic form; and (c) about "musical ideas", that is, deep temporal structures shaping existential sensations of moment and process.

Keywords: Musical Meaning, Musical Emotion, Form, Information, Beauty

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Embodied Microtonal Practice and Affective Learning Strategies in Advanced Jazz Musicians

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Background: Research on music learning has increasingly emphasized the role of embodied and affective processes in shaping perceptual and cognitive development. In jazz education, however, learning is still often framed in terms of pitch accuracy and stable tonal categories. Microtonal practice offers a productive way to destabilize these assumptions by introducing controlled deviations from conventional pitch frameworks, thereby foregrounding embodied, emotional, and relational dimensions of listening.

Aims: This paper investigates how embodied microtonal practice fosters learning strategies beyond pitch accuracy in advanced jazz musicians. The study focuses in particular on affective learning

processes and their role in reshaping listening behaviour, interaction, and musical decision-making.

Method: The study is based on a qualitative, practice-based investigation conducted over one academic semester with approximately 15–25 advanced jazz students operating at a near-professional level. Microtonal intonation was integrated into ensemble-based improvisation as an experiential learning condition rather than as a system-theoretical subject. Data sources include semi-structured interviews, embodied observation in rehearsal and performance contexts, and autoethnographic reflection. Analysis centres on the participants' descriptions of emotional, bodily, and perceptual responses during engagement with microtonal material.

Results: Participants consistently reported affective states such as uncertainty, tension, loss of habitual control, and heightened attentional focus when conventional pitch references became unreliable. These emotional responses were not experienced as obstacles but as catalysts for learning. Students described shifts away from corrective pitch control toward strategies emphasizing relational intonation, intensified listening, adaptive interaction, and contextual awareness. Learning emerged as a process of embodied regulation and reorientation rather than the stabilization of pitch accuracy.

Conclusions: The findings suggest that microtonal practice functions as an effective learning environment by activating affective and embodied processes that support the development of flexible learning strategies. Rather than refining pitch accuracy alone, such practices encourage musicians to navigate perceptual ambiguity through embodied listening and emotional regulation. The study contributes to the psychology of music by highlighting the central role of affective destabilization in advanced musical learning and by framing microtonal practice as a methodological tool for investigating embodied cognition in music.

Keywords: Embodied Cognition, Affective Learning, Music Perception, Microtonality, Jazz Improvisation

When DO is SOL: Parallel Use of Absolute and Relative Solmization

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Background: In an increasingly mobile Europe, many music students complete part of their studies abroad. Music education systems, including solfege pedagogy, differ considerably across countries, and incoming students are expected to adapt. In the Netherlands, where this research is conducted, several conservatories use relative solmization, to develop sight-singing and aural skills. However, many international students come from countries where absolute solmization is the primary, or even only note-naming system (in further text I refer to them as "fix-do" students). While it is usually seen as switching from absolute to relative note names, in practice, absolute solmization always remains active. As a result, the two systems function in parallel, which influences the sight-singing process. Sight-singing includes two forms of verbal-association: assigning solmization syllables to visual notation and associating pitch with those syllables. For fix-do students, notation automatically activates absolute note names. When required to reinterpret these notes relatively, students experience interference between the two systems, often leading to hesitation and reduced performance quality.

Aims: This study investigates the cognitive challenges fix-do students face when learning relative solmization for sight-singing. The analysis draws on cognitive psychology, learning theories, and theories of bilingualism. By analogy with bilingualism, relative solmization can be viewed as a second language. The sound initially linked to note names in the first system must be reassigned to other verbal labels in the second. Because the two systems share identical syllables with different meanings (non-cognate homographs), learners must constantly inhibit one system while activating the other. The activation-based competition model of bilingual memory (French & Ohnesorge, 1995) provides a useful framework for understanding typical sight-singing errors. The parallel use of two solmization systems increases cognitive load. Cognitive Load Theory (Sweller et al., 2019) helps identify pedagogical strategies to reduce this burden. For example, training students to recognize melodic patterns rather than process individual notes may, in this case, also minimize cross-system interference, as relative labels for larger units do not directly compete with absolute single-note names.

Main contribution: While the study has direct practical value for solfege pedagogy, it also demonstrates the potential of interdisciplinary research at the intersection of aural skills acquisition, bilingualism, and general learning theory.

Implications: With growing student mobility across Europe, music educators experience growing challenges in working with students from diverse educational backgrounds. Addressing such diversity has thus become an increasingly important issue. Understanding the cognitive mechanisms underlying solmization interference can inform more effective and inclusive pedagogical approaches.

Keywords: Solfege Methodology, Solmization, Bilingualism, Cognitive Load

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