Second International Conference

Psychology and Music – Interdisciplinary Encounters

October 26–29, 2022 | Belgrade

Psychology & Music
Interdisciplinary Encounters
BELGRADE 2022

Abstract Booklet

Editors:
Blanka Bogunović and Sanela Nikolić

Faculty of Music, University of Arts in Belgrade
Institute of Psychology, Faculty of Philosophy, University of Belgrade
Psychology of Music Section, Serbian Psychological Society
Regional Network Psychology and Music

Second International Conference
Psychology and Music – Interdisciplinary Encounters
PAM-IE Belgrade 2022

Main Conference Program, October 26–29, 2022
Parallel Conference Program, October 27, 2022

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Faculty of Music, University of Arts in Belgrade

Co-organizers
Institute of Psychology, Faculty of Philosophy, University of Belgrade
Psychology of Music Section, Serbian Psychological Society
Regional Network Psychology and Music (RNPaM)

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Blanka Bogunović and Sanela Nikolić

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SECOND INTERNATIONAL CONFERENCE
Psychology and Music – Interdisciplinary Encounters
PAM-IE Belgrade 2022

ABSTRACT BOOKLET

Editors
Blanka Bogunović and Sanela Nikolić

Faculty of Music, University of Arts in Belgrade, 2022

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Editors' Note

The Faculty of Music, University of Arts in Belgrade and co-organizers (Institute of Psychology, Faculty of Philosophy, University of Belgrade, Psychology of Music Section, Serbian Psychological Society, and Regional Network Psychology and Music) are hosting the second international conference *Psychology and Music – Interdisciplinary Encounters* (PAM-IE Belgrade 2022), October 26–29, 2022.

The first inaugural conference, *Psychology and Music – Interdisciplinary Encounters*, held in 2019 in Belgrade, generated extraordinarily strong interest. Participants came from Serbia as well as from 18 other countries. Such a strong response implied that the interdisciplinary field of psychology and music is highly exciting and challenging, and it made our efforts worthwhile. One of the valuable outcomes of the Conference was the stronger bounding of colleagues from the Western Balkan region which resulted in the foundation of the Regional Network Psychology and Music (RNPaM) in 2020. The network has gathered over 30 members, active in joint and individual activities in the psychology of music and related disciplines. One of them is participation in organizing the PAM-IE 2022 Conference. Next, the connections and collaborative projects with European colleagues are empowered and are ongoing.

All these encouraged us to organize the second international PAM-IE Belgrade 2022 Conference and continue the work on the psychology of music popularization and dissemination of research and practical work results. We aim to bring together the diverse research endeavors of individuals and institutions in the interdisciplinary field of psychology and music, who work in Serbia, the Western Balkan region, and European countries, and to continue providing a setting in which they can make their work visible to each other as well as to a broader interested audience.

The PAM-IE Belgrade 2022 conference is this time organized as a hybrid event, in two parallel modes – as an in-person and online event – with the possibility of two-way communications between 'in live' and online participants. After experiencing the COVID-19 pandemic, a hybrid conference becomes a format the research community expects to continue. A hybrid conference format strengthens the connectivity, diversity and inclusion within the research community, as proven by ICMPC-ESCOM 2021 and is in line with the policy of developing green and inclusive conferences. By organizing a PAM-IE Belgrade 2022 conference as a hybrid event, the possibility of increasing the number of present colleagues – those who are willing to participate as presenters, as well as the audiences who wish to follow the Conference– is set on. The benefits are two-sided – both for those present in situ and online. Hybrid conference format also encourages the knowledge transfer between academic and commercial settings through conference web presence, online streaming, and social media as mass-media formats for the dissemination of scholarly work.

The PAM-IE Belgrade 2022 conference program includes almost 80 presentations – 4 keynote lectures, 58 oral presentations divided into 15 thematic sessions, 10 poster presentations, as well as 1 thematic symposium, 3 workshops, 1 roundtable, and 3 concerts. We are pleased to welcome in Belgrade over 60 registered conference participants in-person as well as around

25 participants who will present their contributions online, from 21 countries. The intersest of the music school teachers who will follow the program is extremely high (more than 100 applicants). Within the Parallel conference program, the 3 most recent book projects will be presented, and the Round table *47 years of Psychology of music in Serbia* in honor of Prof. Ksenija Radoš, the initiator of the psychology of music in Serbia.

The Conference is strongly supported by the Society for Education, Music and Psychology Research (SEMPRE) and the European Society for the Cognitive Sciences of Music (ESCOM) in line with its policy to promote regional visibility and interconnectedness of music cognition research across Europe and beyond.

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ESCOM Early Career Researcher Award

ESCOM Early Career Researcher Award will be given to PhD or Master student for a high-quality proceedings paper in the field of music perception and cognition.

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-

Abstracts

MAIN CONFERENCE PROGRAM

KEYNOTES

Improvisation in classical music

David Dolan

Head of the Centre for Creative Performance & Classical Improvisation, Guildhall School of Music & Drama, London United Kingdom

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Abstract

For some, the very notion of Improvisation might feel like the complete opposite of what high-quality classical music performance is about. However, up until the end of the 19th century, European art-music concert culture was different. Listeners expected to be surprised and encounter the unexpected both when repertoire works were performed and during improvisations which were an integral part of most concerts. Performance of repertoire works included extemporising repeats, fermata points, eingangs, cadenzas, preludes before & interludes between movements and pieces. Independently of repertoire, fantasies on themes provided by the audience were a common practice (Gooley, 2018). This session is looking into reviving this tradition and the spirit behind it in relation to both performers and audiences' experience. Together with a chamber music group from the University of Arts in Belgrade whose members have not practised improvisation before, we will be sharing with you some first steps in the process, the spirit behind this tradition and some of its outcomes. Along the lines of two large-scale research projects, we conducted in 2013 and 2018, which were based on live concerts and audience response, this session will be an open performance workshop in which risk-taking, intense heightened listening and musical telepathy as well as searching for one's expressing narrative will be explored. The performance will be followed by an invitation to you, the delegates, to share a conversation between us all – including the performers – about what you felt, your thoughts, questions and observations about the process and potential insights.

David Dolan has devoted a significant part of his career as a concert pianist, researcher, and teacher, to the revival of the art of classical improvisation and its applications in performance. In his world-wide performances, he returns to the tradition of incorporating extemporisations within classical repertoire in embellished repeats, preludes, interludes, and fantasies (often based on themes provided by the audience), eingangs and cadenzas. He has performed solo recitals and chamber music concerts, as well as recording and live broadcasting for several radio and TV stations. In response to this CD, "When Interpretation and Improvisation Get Together", Yehudi Menuhin proclaimed: "David Dolan is giving new life to classical music." David is a professor of classical improvisation and its application on solo and chamber music performance at the Guildhall School of Music and Drama in London, where he is the head of the Centre for Creative Performance and Classical Improvisation. He also teaches at the Yehudi Menuhin School. He has been conducting masterclasses and workshops worldwide, including Paris and Geneva conservatoires, Tel-Aviv & Jerusalem academies, the Tchaikovsky Conservatoire (Moscow), the Sibelius Academy in Helsinki, the New England Conservatory in Boston, Vienna Hochschule, the Juilliard School, Verbier Festival, and others. David is an associate of Clare Hall, Cambridge University. Past research projects examined links between emotional expression in speech intonation and musical improvisation. More recent research work focuses on creativity and expression in performance in collaboration with the Imperial College Neuroscience team and the psychologist John Sloboda.

Embodied musical synergies. Action and interaction in the musical moment

Andrea Schiavio

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Abstract

Recent approaches in the cognitive sciences and the cognitive humanities have highlighted the key role of action and interaction in actively shaping the world around us. Extending this orientation to musical contexts can be helpful in gaining a deeper insight into a range of issues relating to the way we make and learn music. In particular, the framework provided by the approach known as "4E cognition" offers important conceptual resources that can help us explore to what extent bodily activity and social interaction might be understood as essential features of musicking. To address this point, I will present theoretical and empirical research inspired by the 4E framework, examining how crucial aspects of musical creativity, musical imagination, and music-making can be considered grounded in action and intersubjectivity. In doing so, I will suggest that musical activity can contribute to forge *embodied musical synergies* between people across multiple levels and timescales.

Dr. Andrea Schiavio is Lecturer at the School of Arts and Creative Technologies of the University of York. He received his PhD from the University of Sheffield in 2014, studying musical skill acquisition through the lens of embodied cognitive science. After his doctoral studies, he continued this research as a postdoc in the USA (Ohio State University), Turkey (Bosphorus University), and Austria (University of Music and Performing Arts Graz, and UniGraz) gaining relevant interdisciplinary experience. From 2019 to 2022, he has directed a research project at the crossroads of sciences and humanities to explore innovative ways to conceptualise, assess, and enhance musical creativity across a range of pedagogical and performative settings. In addition to a recently completed co-authored monograph for MIT Press (*Musical bodies, musical minds. Enactive cognitive science and the meaning of human musicality*), his work has been published in venues such as *Music Perception*, *Scientific Reports*, *Psychology of Music*, *Phenomenology and the Cognitive Sciences*, and *The Oxford Handbook of Musical Performance*, among others. He has delivered keynote addresses, invited lectures, and full-day workshops at institutes in the EU and the US, combining scientific thinking with practical insights relevant to music teachers and learners. Andrea is one of three Editors and founders of the newly established book series *Music as Art and Science* (OUP); he is Vice-President of SIM (Society for Interdisciplinary Musicology), and President of ESCOM (European Society for the Cognitive Sciences of Music).

Music that matters: Unique and collective features in experiences of favorite music across place and time

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Abstract

I tackle two pressing issues for music psychology. The first concerns contexts and cultures. After many years of focus on largely Western musical traditions, music psychology is developing into an international and multicultural discipline. Researchers are beginning to acknowledge the importance of taking a variety of cultural perspectives into account when looking at how music works for those engaged with it and the importance of working across disciplines and different cultural settings (Jacoby et al., 2020). The second concerns time. Over the past few decades there have been dramatic changes in the ways in which we access music as well as the range of music that can be accessed, with increases in digitized music, low-cost storage and the growth of streaming and recommending systems. Although acknowledged by those working in developmental music psychology and in technology, most research on everyday engagement with music fails to consider how time, and more specifically generational shifts, may affect our memories of favorite music. The presentation will draw on new data focusing on personally significant and favorite music. One study gathered self-recalled memories of personally significant pieces of music under Covid lockdown from participants around the world, and the second captured descriptions of intense experiences of music drawn from a diverse range of musical cultures and subcultures. Analysis sheds light on not only the breadth of music that evokes strong responses but also the diversity of contexts in which memories are formed and generational differences in musical experience. The results will illustrate the unique and collective themes of significant musical memories and provide impetus for further research to engage with both place and time.

Alexandra Lamont is currently Professor of Music Psychology at the School of Psychology at Keele University, where she also leads the University's Doctoral Academy. She comes from a multidisciplinary background, having studied and taught in the fields of music, education and psychology, and has diverse research interests relating to how and why music means so much to people. She has explored music cognition and the development of listening skills in childhood and adulthood, researching both age and experience as influential factors. She has researched the topics of music preference, musical identity, musical engagement and wellbeing, everyday listening habits, and musical memories and autobiographies, and most of her research has an applied foundation and is conducted in real-world settings. She has particular expertise as a methodological innovator and with qualitative and mixed methods enquiries. Professor Lamont has published her research widely in a range of peer reviewed journals and edited volumes and is the co-author of the recent book *The Psychology of Musical Development* with Professor David Hargreaves (2017, Cambridge University Press). She is a former Editor of the journal *Psychology of Music* and is currently a Trustee of the Society for Education, Music and Psychology Research.

Musically talented in competition

Heiner Gembris
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Background

Music contests are a tool for talent identification and talent promotion. Research on contests and their participants is scarce. In particular, little is known about the long-term effects of contests on musical life trajectories and careers. This research deficit has recently been examined in detail in some large studies (Gembris & Bullerjahn, 2022; Gembris, Menze, Heye & Herbst, 2020; Gembris, Menze & Herbst, 2020)

Aims

The aim is to present some important results of a large-scale study on participants (N = 1,143) in the national contest "Jugend musiziert" [Youth making music] (e.g., sociocultural background, personality traits, practicing behavior, career aspirations, etc.). These findings will be combined with results from two follow-up studies that examined the musical and professional development of former contest participants. On this basis, the effectiveness and sustainability of the promotion of musical talent through the "Jugend musiziert" competition as an exemplary case will be discussed as well as aspects like social justice and sustainability in the context of gifted education.

Main contribution

The participants (M = 15 years, SD = 2.14; f = 62%) at the highest level of the "Jugend musiziert" contest (national contest) in Germany come from families with well above-average education, very high appreciation of music, largely musical activities on the part of their parents, and an above-average number of siblings, most of whom are also musically active. They show above-average school performance and above-average openness (Big Five). Main incentives for competition participation are hope for challenge and flow experience. Between 60% and 70% consider studying music or becoming a professional musician. Follow-up studies with former participants in state and national competitions "Jugend musiziert" (N = 807) and state youth orchestras (N = 168) showed that the importance of music and music-making remains very high for almost all former competition participants throughout their lives, and that about half of them pursue music-related professions.

Implications

Valuing music and musical activities are passed down from generation to generation as cultural capital in families. The former talented, successful contestants often become essential promoters of musical culture and multipliers of musical education in formal and informal contexts. Aspects such as social justice, cultural participation and sustainability and current educational policy positions are to be discussed.

References

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Gembris, H., Menze, J., Heye, A., & Herbst, S. (2020). *Ehemalige Teilnehmende am Wettbewerb "Jugend musiziert" und ihre Lebenswege: Eine Studie zu den (Nach-)Wirkungen musikalischer Bildung* [Former participants in the "youth makes music" contest and their musical life paths: A study on the effects of intensive music-making in youth]: Lit.

Gembris, H., Menze, J., & Herbst, S. (2020). *Begabungsförderung im Landesjugendorchester. Erfahrungen und Lebensweg ehemaliger Orchestermitglieder* [Talent development in the state youth orchestra. Experiences and life paths of former orchestra members]: Lit.

Keywords: Musically talented, talent development, lifespan perspective, music contests, musicians.

Prof. Dr. Heiner Gembris studied music education, German language and literature, and musicology. He received his doctorate in systematic musicology in 1985 with an empirical dissertation on the relaxing effects of music listening. He gained several years of experience as a music teacher at a high school (Gymnasium) in Berlin and worked as a postdoctoral researcher at the Technische Universität Berlin. From 1986 to 1991 he was lecturer for music education at the Augsburg University. From 1991 to 1997 he was professor of systematic musicology at the University of Münster, and from 1997 to 2001 he held a chair of systematic musicology at the Martin-Luther-University Halle-Wittenberg. Since 2001, Heiner Gembris has been Professor of Empirical and Psychological Foundations of Music Education at the Paderborn University and director of the Institut für Begabungsforschung in der Musik [IBFM; Institute for Research on Musical Ability]. His research interests include the lifelong development of musical abilities, music and aging, musical preferences, and the effects of music listening. He has published numerous articles, chapters, and books on these and other topics.

Thematic Session 1

MUSIC IN A SOCIAL CONTEXT

On the social impact of participatory music activities: Musicians' perspectives

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Background

This research is part of the international project "Music for Social Impact: Practitioners' Contexts, Work, and Beliefs" which investigates accomplished musicians who lead participatory music activities with the dual aim of creating artistic outcomes (such as public performances), while at the same time addressing social goals (such as community building). The activities aim to reach people of diverse backgrounds, often described by their social needs or deprivation (such as homelessness). The activities tend to be framed in terms of and funded for promising to having a "social impact" (e.g., Belfiore & Bennett, 2010). Four countries take part in the project. The present paper focuses on the interview data collected in Belgium.

Aims

The present paper addresses the question of what musicians' beliefs are about the social impact of participatory music activities that they lead.

Method

After 47 musicians completed an online screening survey, 21 of them participated in a follow-up, semi-structured, in-depth interview, covering topics such as their musical and social background; the content of their musical practice; their motivation; their beliefs about any added value or impact their work might have; whether or in which ways their work is monitored or evaluated; and how their work is embedded in a context. The interviews were transcribed verbatim (total word count: 224,453) and analyzed via a constructive grounded theory approach including initial and focused coding, memo-writing, axial coding, and diagramming (Charmaz, 2006) using NVivo software.

Results

Data analysis yielded a complex picture of the musicians' perspectives on their work and its impact. Importantly, a discourse in which participatory music activities are judged by the criterion of "social impact" – as is common in the UK – is not (yet) prevalent in Belgium (De bisschop, 2011). This seemed to enable musicians to speak freely about their work. The musicians interviewed do believe that participatory music activities have an impact. They are, however, very modest and nuanced in their claims. Moreover, it became clear that impact is not a straightforward concept. For instance, it may be situated during the process of music making as well as afterwards; it can be short-term or long-lasting; and it can concern the musicians themselves, the participants, or wider society. All the musicians gave examples of short-term impact on the participants during the music-making process. About long-term impact on society, they were

more doubtful. Interestingly, though, this work seems to have long-lasting impact on the musicians themselves: it makes them feel grateful for the little things in life; it changes their perception of 'the other'; it makes them focus more on connecting with people; it lets them question their artistic identity; it makes them more aware of their own cultural identity; and it shapes their belief that music should have societal relevance.

Conclusions

The present paper provides a nuanced insight into musicians' perspectives – which are underrepresented in the literature – on the social impact of participatory music activities.

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Keywords: musicians' perspectives, participatory music activities, social impact.

The psychological-social aspects of the Serbian Easter Ball in Santovo

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Background

Since 2019 I have been following the dance events, so-called Serbian Balls in Hungary. The Balls intrigued my researcher's curiosity by the mixture of multiethnic participants and ethnically specific cultural texts. Most participants were Hungarians (circa 80%), followed by Serbs and Croatians. At the centre of Serbian Balls is the performance of Serbian and Macedonian traditional dances, accompanied by Serbian folk music (Nikolić, 2021).

Aims

The presentation begins with the ethnographical background of attendees at the Serbian Easter Ball in the southwestern Hungarian village of Santovo. Further, an analysis will disclose participants' responses as to their motivation for attending the Ball and their feelings about the event. Finally, the presentation will conclude with the social benefits of dancing at the Ball to the community.

Method

The case study method involves gathering empirical data based on the participant observation of the Easter Ball in Santovo. A written questionnaire (Williamon et al., 2021) comprising seventeen questions was then circulated to participants. It consisted of close-ended questions (age, nationality, profession, Ball experiences), multiples choice questions (frequency of Ball attendance), ordinal scale questions (valuing one's own dance experience), and open-ended questions (covering reasons for attending the Ball, the importance for the Ball to be maintained). The final methodology was a semi-structured interview with three participants of different nationalities. The interview data allowed a deeper understanding of the themes arising from the questionnaire. All gathered data were systematized by the thematic organization of qualitative data (Attride-Stirling, 2001).

Results

Empirical material revealed a diverse range of age among participants (17-65), gender (male 40%, female 60%), professions (students, teachers, farmers, mechanical engineers, painters, etc.) and dance experience (beginners, well-experienced dancers). Participants identified themselves as being Hungarian (75%), Šokci (17%), and Serbian (8%). When motivation for attendance was in question, the two main themes were friendship and dancing (90%). Secondly, the themes of entertainment (70%) and relaxation (60%) came out as important to participants. Happiness and relaxation were the main feelings of those attending the Ball and were related to dancing

and spending time with friends. Lastly, 80% of participants expressed the opinion that the Ball helps strengthen the community together as well as a way of safeguarding a tradition.

Conclusions

The results showed that the Serbian Easter Ball participants in Santovo are diverse in multiple lenses. Attending the Ball varies from a family ritual to those with a strong passion for Serbian and Macedonian dances. For others, the Ball provides the basis for cultural coexistence and connectedness for its participants and provides an escape from everyday life. Ball's multifaceted dimensions bring enjoyment but continue the passion for this specific dance repertoire.

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Keywords: psychological and social aspects, dance event, Serbian Easter Ball, Santovo, Hungary.

Relationships between musical and political preferences in the group of Polish students

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Background

Since ancient times, art has been an integral part of making politics (Chrościcki, 1983). Empirical research on the relationship between political preferences and musical taste has been tradition since the 1970s (Fox & Williams, 1974). Their results indicate a large variety of music and political preferences resulting, for example, from cultural differences.

Aims

The research aimed to identify whether young Poles living in a highly polarized society in terms of politics could also be differentiated by relationships between political and musical preferences. The detailed questions included the following: (1) Is there a relationship between the preferred musical genres and the level of acceptance of political beliefs characteristic of an authoritarian personality? and (2) Is there a relationship between the preferred musical genres and the displayed political orientation, measured on the scale of liberal-social and conservative-libertarian beliefs?

Method

The research was conducted online on a group of 831 students studying at universities throughout Poland. Authoritarian beliefs were measured on a 15-item scale based on the Likert scale. The liberal-social and conservative-libertarian beliefs were measured with a tool prepared by the authors. The respondents' task was to select one statement in each of the ten opposing pairs of items. Musical preferences were measured with the *Short Test of Music Preferences* (STOMP) by P. Rentfrow and S. Gosling, adapted in Poland by R. Lawendowski (2011). The Statistica 13.1 software was used for statistical analysis. The dominant was correlation analysis.

Results

Among the significant research results, there is a positive relationship between authoritarianism and cheerful and conventional music (r = .111; p <. 001), and a negative correlation between authoritarianism and intense and rebellious music (r = –.242; p < .001). In turn, there is weak and positive correlation between the intensity of authoritarianism and the preference for disco polo (r = .246; p < .001), sacred music (r = .137; p < 0.001) and pop (r = .089; p < .01). Some similar relationships were noticed on the scale of liberal-social and conservative-libertarian beliefs.

Conclusions

The authors managed to confirm a relationship between musical and political preferences to a certain extent. Among the detailed analysis of musical genres, one can notice a strong relationship between authoritarian beliefs and sacred and pop music, which fit into the nature of cheerful and conventional music, and a lower degree of intensity of this feature is associated with the preferences of alternative music, rock, jazz, funk, blues, which they enter into the nature of intense and rebellious, as well as reflective and complex music.

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Keywords: musical preferences, political orientations, authoritarian personality.

Cultural habits of music high-school pupils in Serbia before, during and after the COVID-19 lockdown

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Background
The coronavirus pandemic and the restriction policies that followed affected all areas of life in Serbia. During the lockdown, cultural life was at a standstill. Earlier studies have shown that cultural participation in Serbia is low in the general population (Opačić & Subašić, 2016) and among adolescents (Krnjaić et al., 2011; Mrđa, 2011).

Aims
The study aimed to gain insight into the cultural habits of students in a music high school in Belgrade before, during and after the COVID-19 lockdown.

Method
A questionnaire was constructed for data collection, which took place on February 2022. The participants were 46 students in Music high school "Davorin Jenko" in Belgrade, 33 girls and 13 boys, between 15 and 19 years of age. They were instructed to report their engagement in several cultural activities, evaluate them, and assess, on the five-point Likert scale, how often they use the internet for cultural purposes. Three periods were covered: before, during, and after the lockdown. Most of the items were parallel. Nonparametric statistical tests were used: Wilcoxson signed rank test, Mann-Whitney test, Kruskal-Wallis test, Pearson Chi-Square and descriptive statistics for quantitative data.

Results
Cinema attendance was the most frequent cultural habit (up to 2 times in three months). The internet was mostly used for watching movies and listening to popular music (one or more times a week), which did not change significantly during the three periods. Girls, high achievers, students of higher material status and students living in urban areas reported higher attendance and positive attitude towards most cultural events. Use of the internet as a source of information dropped significantly during the lockdown but rose back to its usual levels (M =3.70; M = 3.35; M = 3.78 chronologically). The attendance of theatre plays, museum exhibitions and public lectures was significantly lower after the lockdown.

Conclusions
After the lockdown, cultural institutions reopened with a limited capacity which might have caused the lower attendance of some cultural events. All scheduled cultural events were cancelled or postponed during the lockdown, which might explain the lower use of the internet as a source of information. The connection between cultural participation and variables such as gender, academic achievement, social status, and accessibility of cultural venues have been ob-

served in other studies (Nagel, 2010; Brook, 2016) and shed light on the importance of lifestyle in the development of cultural habits.

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Keywords: music, high school students, cultural habits, COVID-19, lockdown, internet.

Thematic Session 2

MUSIC PERCEPTION 1

Synaesthetic responses to music in non-synaesthetes: From multimodality to emotion and synaesthesia

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

Aims
The main aim was to test the hypotheses a) that changes to action-related qualities of a musical stimulus affect the resulting synaesthetic experience, and b) that a relationship exists between multimodal and emotional responses to music in the general population. The objective was to highlight commonalities between mechanisms underlying music-colour synaesthesia and general music cognition, and to demonstrate some forms of music-colour synaesthesia are grounded in action.

Method
Twenty nine self-reporting synaesthete and 33 non-synaesthete musicians reported their experience whilst listening to 3 sets of 4 musical excerpts:
Set 1: played on the participant's Principal Instrument
Set 2: Set 1 but on an instrument not played by the participant before
Set 3: Set 1 but generated on an electronic instrument with no expression
Synaesthetes were participants selected and rated the applicability and intensity of terms that best described their sensorimotor/multimodal, emotional and synaesthetic experience and the strength of their motivation to move and vocalise to the music.

Results
The most influential effect on the intensity of listeners' multimodal, emotional or synaesthetic responses was whether or not music was performed by a human, more so than familiarity with a particular instrument. Synaesthetes and non-synaesthetes were shown to share a relationship between the intensity of emotional and multimodal responses. Yet, it was multimodal/sensorimotor intensity that was shown to be fundamentally associated with the intensity of the synaesthetic response. Overall, the results highlighted commonalities between the mechanisms underlying music-colour synaesthesia and general music cognition and demonstrated that some forms of music-colour synaesthesia are grounded in action.

Conclusions

This research further encourages us to place synaesthesia in response to music on a continuum from "synaesthesia" to "typical music cognition" not just in perceptual terms as previously argued (Eitan 2007; Marks, 1975, 1987) but also in sense of music cognition as an embodied phenomenon.

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Keywords: synaesthesia, music-colour, emotional, action, perception.

Cross-modal associations of musical harmony: Speed, randomness, and surface roughness

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Background

Results from cross-modal studies which examine the association between harmonic consonance/dissonance and two/three-dimensional surface roughness have been very promising. At the same time, the cross-modal potential of harmonic dissonance and other domains remains mostly unexplored; investigating whether harmonic dissonance can be associated with and depicted visually as surface roughness, motion speed and randomness, is an open research topic.

Aims

This research aims to assess the relationship (if any) between harmonic dissonance, expressed as an average mean in musical stimuli consisting of chord progressions, and two distinct domains: visual roughness, represented as Perlin noise images (McKay, 2015) and the random motion speed of Brownian gas particles when the temperature increases (Riva, 2014). The harmonic dissonance of the stimuli is measured with Harrison and Pierce's model (2020). There is a strong indication that listeners will associate an increase in harmonic dissonance with a comparable increase in Perlin surface roughness (Giannos et al., 2021). Parallel to this, it is hypothesized that increased energy/tension as represented by harmonic dissonance may be tentatively associated with an increase in the speed of the Brownian motion particles, and the corresponding increase in perceptible randomness (Tune, 1964); low harmonic dissonance will be matched to Perlin images of low surface roughness, and reduced Brownian particle speed.

Method

Five musical stimuli consisted of three or four-chord sequences, ranging from fully tonal harmonic chords to 12-tone chord series. The stimuli varied widely in levels of harmonic consonance/dissonance. Audio rendering was generated using a Piano plug-in (Finale v25.5), ensuring timbre, dynamics, and tempo remained constant. They were then presented to musically trained and untrained listeners who paired them with images varying in visual roughness, as well as with short videos depicting Brownian motion gas particles varying in speed. The listeners, apart from their musical training, provided further information as to their listening preferences and familiarity ratings for the stimuli.

Results

Stimulus dissonance correlated highly with rough images of Perlin noise ($r = .99$, $p < .001$), for musicians and non-musicians alike. A significant correlation was also found between stimulus dissonance and responses to the gifs depicting Brownian motion ($r = .81$, $p = .048$). After run-

ning an ANOVA to compare the gif responses to each chord sequence, we obtained a significant *F*-statistic $F(5,540) = 10.46$, $p < .001$, $\eta^2 = .09$, suggesting a medium effect size.

Conclusions

The visualization of harmonic dissonance in two and three-dimensional space is an issue at the forefront of interest in cross-domain studies involving music and other areas of perception. Building upon the existing association between harmonic dissonance and surface roughness, we investigate and further test how cross-modal correspondences in the harmonic aspect of music relate to analogy and metaphor in broader domains.

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Keywords: harmony, dissonance, cross-modal, visual roughness, music and motion.

Age-related motor speed and music of the world's best-selling recording artists

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Background

Typical movement speed, often measured by spontaneous motor tempo (SMT), has been shown to follow a downward trajectory across the lifespan (Hammerschmidt et al., 2021; McAuley et al., 2006). It is also well established that body movement and musical activity are intimately intertwined, especially in terms of timing-related factors (Friberg & Sundberg, 1999; Luck & Toiviainen, 2012). In light of this, it might not seem unreasonable to expect the tempo of music we create to slow as we age. One way of investigating this would be to examine the tempo of songs released by top-tier recording artists – who might be expected to exert significant influence over the tempo of their music – over their decades-long careers.

Aims

The aim was to examine how a typical age-driven decrease in movement speed might have impacted the tempo of music released by the world's most successful recording artists. Three hypotheses were formulated. H1: Artists will exhibit a downward trend in average album tempo (AAT) across their careers. H2: Artist-specific variations will be observed due to other likely tempo-related influences (different producers, musicians, label executives, genres, musical trends, etc.). H3: Nonetheless, by standardizing tempo within-artist, it will be possible to construct a robust model in which artist age predicts tempo.

Method

Catalogues of the ten all-time best-selling solo artists (top 5 male, top 5 female) with careers spanning at least 2 decades were selected for study (Eminem, Elvis Presley, Michael Jackson, Elton John, Lil Wayne, Mariah Carey, Madonna, Whitney Houston, Céline Dion, Shania Twain). The resulting corpus comprised 134 albums and 1497 tracks. The basic beat-level tempo was obtained manually for each track via a tapping task then averaged by album.

Results

All ten artists exhibited a downward trend in AAT across their careers (supporting H1) with noticeable individual variation (supporting H2). AAT was standardized within-artist, combined, and regressed against artist age. This yielded a robust linear relationship between AAT and artist age, $F(1,26) = 13.35$, $R^2 = .34$, $p < .005$ (supporting H3), with AAT decreasing by one and a half standard deviations from artists' early twenties to their late fifties.

Conclusions

All three hypotheses were confirmed. Artist age was found to be a statistically significant predictor of the tempo of music released by the world's most successful recording artists over the past 60 years.

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Keywords: motor tempo, songwriting, average album tempo, linear regression, predictive modeling.

Intercultural features of music perception: Comparing Russian and Chinese musicians

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Background

For many years, psychology has discussed the questions associated with cross-cultural specificity of the universals such as emotion, including the process of music perception (Prete et al., 2020). Identifying psychological and psychophysiological "markers" of ethno-hearing that allow capturing cross-cultural differences in the perception of so-called 'native' and 'foreign' music is an urgent task (Suero et al., 2019; Toropova & Knyazeva, 2017). However, the Russian and Chinese samples were not compared in this context.

Aims

The aim of the research was to study the peculiarities of perception of national and academic music in the samples of Russian and Chinese musicians. The hypothesis was that the perception of music depends on the listener's national-cultural and educational-cultural socialization. We assumed the differences between Russian and Chinese subjects in the perception of 'native' and 'foreign' music, but there are no differences in the perception of classical music.

Method

Twenty seven Russian and 26 Chinese musicians rated musical pieces (national Russian and Chinese music, classical Western European music) according to semantic scales. EEG alpha activity values were recorded while listening to the music.

Results

Both psycho-semantic and EEG studies show no differences between the groups in the perception of classical music but the presence of differences in the perception of traditional Russian and Chinese music. Psycho-semantic differences were found in the overall rating profile, the axes of factor space, the power of factor contributions and their content. For example, the 'unhappy – happy' scale in the Russian and Chinese samples was 'glued' with different attributes. When 'native' music was assessed, there was an increase in the strength of the factors' contributions to the total variance of the coordinate axes, indicating a change in the subjective significance of the categorization bases. EEG data analysis revealed differences in the dynamics of alpha activity patterns when listening to traditional folk music and no such specificity when listening to classical music.

Conclusions

The assumptions were confirmed. Each person 'gravitates' to the codes of their culture, as their perception is based on the formed musical and linguistic standards characteristic of a particular culture (national-cultural socialization). However, the similarity of musical experience,

formed in the process of academic musical education (educational and cultural socialization), levels ethnic differences in the perception of classical music and limits the influence of 'ethno-hearing', although it does not eliminate it completely.

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Keywords: music perception, emotional content of music, intercultural features, psycho-semantic, electroencephalogram.

Thematic Session 3

MUSICIANS' HEALTH 1

Resilient artists: A mental health prevention program

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Background

Mental health issues among musicians are documented extensively. Research has shown that social comparison, extreme competition, and high levels of job insecurity are widespread (e.g., Perkins et al., 2017). Furthermore, musicians experience a range of mental health issues (e.g., Kenny et al., 2014; Vaag et al., 2016). Therefore, conservatories and professional organizations should increase their focus on the mental health of their students and professionals. One possibility to do so is by promoting psychological resilience among performing artists. Research has shown that psychological resilience is an important psychological resource for musicians (Kegelaers et al., 2020).

Aims

The current study comprised two components. Firstly, a qualitative study focused on *what are artists' subjective experiences of these challenges?* In this study, the experiences of three groups of performing artists were compared (i.e., musicians, dancers, and actors) to identify unique and common challenges in various disciplines. This knowledge was used to inform our prevention efforts. Secondly, an intervention study aimed at developing a mental health prevention program and examining *how performing artists experience a tailored mental health intervention regarding resilience?*

Method

Fifteen semi-structured interviews were conducted with musicians (N = 5), dancers (N = 5) and actors (N = 5), as well as a mixed focus group (N = 13). The data were subsequently analyzed using inductive content analysis. The second part of the study takes place in April-May 2022. It will consist of implementing and evaluating the mental health prevention program (N = 20). The prevention program consists of six two-hour sessions focusing on psycho-education regarding mental health challenges, group discussions and interactive exercises to increase resilience.

Results

Using inductive content analysis, the results showed that musicians, dancers and actors have discipline-specific mental health challenges (e.g., anxiety regarding short-lived careers for dancers, identity blurring between character identity and personal identity for actors; self-medication to counteract shaking hands for musicians), but are for a large part exposed to the same types of challenges (e.g., perfectionism, fear of failure, mental health taboo, competition among peers, coping with job insecurity). The implementation of the intervention is in its last stage.

Conclusions

Performing artists are confronted with a plethora of mental health challenges in their studies and careers, which may increase their chances of developing mental health issues. The current study confirmed the prevalence of these problems in a mixed group of performing artists and used the findings to create a mental health intervention.

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Keywords: mental health, prevention program, qualitative research.

Music interventions and the mental health of young people: The need for robust critique in research studies and evidence reviews

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Background
During the last ten years, the number of controlled research studies on music- and arts-based therapies and programs and mental health in young people has increased to such extent that a significant number of reviews, including systematic reviews, Cochrane reviews, and even meta-analyses, have appeared appraising the quality of the evidence and synthesizing established knowledge. In our preliminary work, we have prepared a protocol for a systematic review of controlled studies on the effects of arts-based programs on mental health in young people (Grebosz-Haring et al., 2021). We have searched for relevant studies through major databases and screened extant systematic reviews for additional research which meets our inclusion criteria. Our examination, however, has revealed concerns about the quality of existing primary studies on the effects of creative arts programs and therapy for young people with mental health challenges and of subsequent published systematic reviews.

Aims
In this paper, we examine one widely cited example of a research study on music therapy for children with diagnosed anxiety disorders by Goldbeck and Ellerkamp (2012) and its treatment in four subsequent systematic reviews/meta-analyses published between 2017–2021.

Main contribution
We demonstrate limitations in the Goldbeck and Ellerkamp study, which undermine the conclusion they reach on the effectiveness of music therapy in the remission of anxiety disorders. We also show that the reviews are not sufficiently critical and make errors in the treatment of Goldbeck and Ellerkamp's research, which cast doubts on their reliability.

Implications
We discuss our findings in the light of a previous critical examination of research in the field of arts and health (Clift et al., 2021; DeNora & Ansdell, 2014; Grebosz-Haring et al., 2022) and the way it is treated in evidence reviews. We also place our findings in the context of growing concerns in medical, social and psychological science research about the quality and usefulness of systematic reviews and meta-analyses and questionable standards of peer reviewing papers in scientific journals. Finally, we draw some positive recommendations for future research and reviews in the field of music, arts and health.

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Keywords: music interventions, young people with mental disorders, systematic review, meta-analysis, critique.

Predicting anxiety, depression, and well-being in professional and non-professional musicians

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Background

People working in the music industries report higher levels of anxiety and depression than the general population (Vaag et al., 2016). Whilst some highlight the psychosocial working conditions of musicians' professional lives as potential causal factors (Gross & Musgrave, 2020), others suggest a higher likelihood of underlying vulnerabilities in those who become musicians (Gillespie & Myors, 2000). To date, studies have not explicitly tested these alternative hypotheses.

Aims

This study aims to discover whether low mental well-being in musicians is common across all those who consider themselves musicians or whether it is specific to those who work in the music industry. It extends previous findings by directly comparing professional musicians with those who perform music primarily for recreation, as well as non-musicians working in the music industry.

Method

254 musicians and music industry professionals from 13 countries completed an online questionnaire. All participants (mean age = 38.1) completed the Hospital and Anxiety Depression Scale (HADS) and the WHO-5, a 5-item measure of positive well-being. They also provided demographic information and answered questions about their professional status, level of success, income and solo/lead status.

Results

Analysis confirmed high levels of anxiety and depression in the whole sample but revealed that career status significantly affected scores. For example, 42% of respondents who viewed music-making as their main career showed clinically significant levels of depression, compared to 22.7% of musicians where music was not considered their main career, and 26.1% of wider music professionals. We also found that solo performers and lead artists reported the lowest levels of mental well-being. Finally, a regression analysis showed that relying on music for income predicated anxiety and that the most reliable independent predictor of all three measures of psychological health was the perceived level of success.

Conclusions

Our data support the view that low mental well-being in musicians results from working as a career musician, as opposed to being an inherent trait. Success, precarity and being a solo artist seem to play a particularly important role. We also show that objective features of being a 'professional' were not always drawn on by musicians in their self-definition, which suggests that music as a professional career is a subjective and belief-based identity.

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Keywords: mental health, anxiety, depression, musicians, creative labour.

When your heart leaps (with fear): Revision of the K-MPAI-R scale for measuring music performance anxiety in high-school music students in Serbia

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Background

Maladaptive music performance anxiety (MPA) is among the most frequently reported psychological issues affecting musicians (Papageorgi, 2020). Its timely identification and provision of adequate psychological support can prove beneficial for young musicians' well-being and psychological health (Patston & Osborne, 2015). Aiming to support music school psychologists in Serbia, we intended to devise a reliable instrument for measuring MPA.

Aims

We aimed to examine the psychometric properties of the revised MPA questionnaire (Kenny, 2017) and to determine possible differences in experiencing MPA between students of different grades, sex, and music school departments.

Method

A total of 207 students from six music high schools in Serbia (13-21 years, $M = 16.45$, $SD = 1.42$; 121 female, 75 male, 11 other; 146 vocal-instrumental, 61 theoretical departments) filled in an online MPA questionnaire (K-MPAI-R scale (Kenny, 2016; 2017), 40 items, 7-point Likert-type, $\alpha = .94$), and self-estimated their success in music (7-point single-item scale) used to validate the revised K-MPAI-R scale.

Results

Aiming to narrow down the operationalization of the MPA construct in K-MPAI-R, after a face-validity check, we excluded five original K-MPAI-R subscales related to broader qualities (*Depression/hopelessness, Parental empathy, Memory, Generational transmission of anxiety* and *Biological vulnerability*), as well as one item with poor item-reliability (K_40; $\alpha < 0.2$). After this revision, the total scale showed a high level of reliability, $\alpha = .94$, as did the remaining subscales: *Proximal somatic anxiety*, ten items, $\alpha = .92$; *Negative cognitions focused on self/other scrutiny*, eight items, $\alpha = .87$; and *Anxious apprehension*: 3 items, $\alpha = .65$. In a multiple regression analysis, the three MPA domains accounted for 17.6% of self-perceived success, $F(3, 199) = 15.378$, $p < .001$, with *Anxious apprehension*, $\beta = -.36$, $p < .001$ as the only significant predictor.

Regarding total K-MPAI-R scores, M = 124.45, SD = 38.46, the results indicate that females are more prone to experience MPA, M = 129.18, SD = 39.26, than males, M = 115.55, SD = 35.52, $t(190) = -2.428$, $p = .016$. There were no statistically significant differences in experiencing MPA between the students of vocal-instrumental and theoretical departments nor between students of different grade levels. Nevertheless, we did find a statistically significant negative correlation between K-MPAI-R total scores and age, $r = -.140$, $p = .047$.

Conclusions

The above results indicate that students less anxious about their performance generally tend to have a more positive perception of their musical outputs. An overall high level of MPA in music students (Kenny, 2015) may imply the need to re-examine teaching practices, and promote the development of coping strategies to deal with the intense physiological and psychological arousal experienced during performing (Patston & Osborne, 2015).

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Keywords: music performance anxiety, K-MPAI-R scale, revision, young musicians.

Thematic Session 4

MUSIC AND EMOTION REGULATION

Adolescents' music listening for relaxation: Subjective and physiological effects

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Background

Stress is an acute problem for adolescents. Seiffge-Krenke et al. (2009) reported that most adolescents experienced significant stress during early adolescence. Music is a common resource for relaxation that is actively used by young people (Wells & Hakanen, 1991), but relatively few studies have empirically tested its efficacy in this age group.

Aims

This study aimed to investigate whether and how self-selected music can facilitate relaxation in adolescents, on both subjective and physiological levels. Three research questions were identified: (1) Does self-selected music promote relaxation (at both subjective and physiological levels) in adolescents? (2) Does music-facilitated relaxation have a stronger effect than relaxation without music? (3) What kind of music did the participants choose for relaxation purposes, and does any particular type of music promote their relaxation better?

Method

Twenty-six adolescents participated in two twenty minutes long individual relaxation sessions: one with self-selected relaxation music and one without music. For the No Music condition, participants were provided with magazines to read. The heart rate variability (HRV) was measured throughout the experiment, and subjective reports of Valence, Arousal and Tension were collected with visual analogue scales before and after each relaxation session. Participants reported music in a free form, so some reports included artists and pieces, some included only genres and some had only general descriptions (e.g., "Radio"). Music chosen by the participants was coded and co-validated by two researchers from the group by genre and level of detail in music descriptions, and it was analyzed in relation to the HRV. All participants underwent both conditions. A year later, the experiment was repeated with the same participants to check the consistency of the results.

Results

HRV was analyzed using three parameters: PNS Index, RMSSD and HFnu. RM ANOVA revealed that both Music and No Music conditions led to a significant increase in all parameters in both years. Subjective ratings were analyzed using Wilcoxon Signed-Rank test; analysis showed a significant increase in valence for both conditions and years and a decrease in tension for the Music condition in both years. Arousal scores, however, increased insignificantly for Music condition, indicating that some participants felt more energetic after relaxation with music. Participants felt significantly less tense after Music than after No music condition in the second year (Wilcoxon Signed-Rank test). Overall, results stayed consistent throughout both

years. Music analysis revealed that there were no specific genres that promoted stronger or weaker relaxation response, but more detailed musical descriptions and diversity of genres was connected to the stronger relaxation response, indicating that a stronger personal relationship to music might lead to better relaxation outcomes in music-facilitated relaxation.

Conclusions

Our findings provide support for the efficacy of music-facilitated relaxation but also raise several questions. The concept of personal relationship to music deserves thorough examination and consideration from the viewpoints of both theory and practical implications in music-based interventions. Also, further research that combines physiological and self-report measures is needed to achieve a comprehensive knowledge of musical experiences.

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Keywords: music-facilitated relaxation, adolescents, heart rate variability, personal relationship to music, self-selected music.

Reconsidering the role of music in mood regulation and its relation to age and gender differences in Serbian adolescents

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Background

Adolescents spend a lot of time listening to music. Music has various functions in their development, and one of the most important is the regulation of emotions (McFerran et al., 2012; Miranda, 2019; Saarikallio & Erkkilä, 2007). A theoretical model that describes mood regulation thru seven regulatory strategies (Diversion, Revival, Mental work, Discharge, Solace, Strong sensation and Entertainment) was developed by Saarikallio and associates (2008). Adolescents who spend more time listening to music and consider it important use these strategies more often than those who appreciate music less (Saarikallio, 2008). It has also been shown that girls use these strategies more frequently than boys, as well as older adolescents than younger. These differences are not found in adulthood, which implies that regulation increases during adolescence and stabilizes at its end (Saarikallio, 2008).

Aims

The main goal was to examine the factor structure of the Brief Music in Mood Regulation scale (B-MMR; Saarikallio, 2012) in Serbian adolescents and to relate obtained factors to music appreciation and time spent on music listening. Also, we investigated gender and age differences since it hasn't been done in our milieu yet.

Method

The convenient sample consisted of 445 primary and secondary school students aged from 12 to 18 years. The online survey included demographic data, questions about the importance and frequency of listening to music, and, finally, B-MMR (Saarikallio, 2012) – a shorter version of a scale measuring the seven strategies for mood regulation by music.

Results

Factor analysis (PAF, Promax rotation) is conducted on B-MMR items regarding music function in mood regulation. Firstly, PAF extracted 3 factors explaining 63.5% of variance (KMO = .944, $\chi^2(120) = 3822$, $p < .001$): Regulation of emotions (composed of five out of seven originally conceptualized strategies), Strong sensation of music and Entertainment. Since the correlation between the first two factors was high (above .70), a number of factors was fixed on two. Strong sensation factor merged with the Regulation of emotions – explaining 48.8% of variance, and Entertainment, as the second factor, explains 8.4% of the variance. T-tests showed that adolescents who spend more time listening to music and consider it more important use music to regulate their mood more often than their peers who don't appreciate music that much. It is shown that girls use Regulation of emotions ($t(214) = 5.264$, $p = .000$, $d = 0.568$) and Entertainment

($t(167) = 4.918$, $p = .000$, $d = 0.564$) more often than boys. Also, older adolescents use both strategies more frequently than younger ($t(154) = -2.192$, $p = .030$, $d = 0.336$; $t(129) = -2.173$, $p = .032$, $d = 0.337$).

Conclusions

The results confirm age and sex differences from the previous studies and the relation between music appreciation and its usage in mood regulation (Saarikallio, 2008). However, the factor structure of B-MMR is different, which questions the original model conceptualization. Namely, the Entertainment dimension seems to be qualitatively different from the others. The implications of the findings are further discussed, and suggestions for future research will be given.

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Keywords: adolescence, mood regulation, music.

Goal-directed mechanisms influence emotional episodes induced by music

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Background

Despite a range of theories describing the underlying mechanisms of emotional responses to music, progress has been limited by a continued focus upon discrete emotions. Lennie and Eerola (2022) sought to advance the topic by combining multiple competing theories (constructionist, dimensional-appraisal, dual-process) into a single model – The CODA model. One prediction of the CODA model is that goal-directed mechanisms play a key role in the ongoing development of an emotional episode with music. One interpretation of musical goals is to look at the many functions music has (social, emotion-regulation, etc.).

Aims

To test the hypothesis of the CODA model, this study seeks to identify the role goal-directed mechanisms have on induced (felt) core-affect.

Method

In this two-part experiment, all data was collected through Prolific. First, relevant musical functions and stimuli were identified in a pre-validation study (N = 48). In the main experiment (N = 120), the effect of different musical stimuli in different functional contexts on core-affect was measured.

For the pre-validation study, 15 musical functions were taken from Schafer et al. (2013) exhaustive list, grouped around three underlying dimensions (self, social, arousal/emotional). A diverse range of 25 musical stimuli was taken from the MUSIC model (Rentfrow et al., 2011), differing in social, emotional, and auditory characteristics. Participants rated their familiarity with each musical function, how well each music stimulus fit each function, and their perceived core-affect ratings for each musical stimulus. The seven most familiar functions across the three dimensions were identified. For each selected function, four music stimuli were selected, the best and worst fit for each function, and two opinion divisive tracks.

For the main experiment, participants were asked to imagine themselves in different scenarios (functional uses of music) and rate their imagined emotional response (arousal, valence, intensity) to musical stimuli with different degrees of fit for the function (congruent, mixed, incongruent). Additional variables such as demographics, familiarity with functions, liking for the music, and genre preferences were also collected.

Results

Results show that the fit of the music stimuli for different functions changes individuals' felt emotional experience; incongruent music producing more negative valence and congruent producing more positive valence. This pattern was replicated even with the same track ap-

plied to different functions. Results for each track additionally showed significant differences between perceived and felt ratings in both goal-congruent and incongruent conditions. The degree of musical fit showed interaction effects with age and genre preferences.

Conclusions

These results support a goal-directed interpretation of the cognitive mechanisms of emotional episodes induced by music, emphasizing the value of expanding methodological approaches to focus upon the systematic manipulation of individual and contextual variables.

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Keywords: goal-directed, emotion, functions of music, appraisal, music.

Trait-dependent and trait-consistent affect regulation in musical practice

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Background

It is often necessary to regulate our emotions to optimize performance and achieve our goals. Musicians may desire to regulate their own emotions to support their musical practice goals. The specific emotional states they target may depend on personality traits, goal orientation, as well as their interaction. Evidence suggests that the attainment of challenging goals may be supported by *trait-consistent* affect (i.e., affect which matches the quality of a personality trait; (Tamir, 2005)). The current study investigates trait-dependent and trait-consistent affect regulation in the context of musical practice and mastery goal orientation.

Aims

To investigate the impact of personality traits and personality-goal interactions on musicians' desired emotional state (DES).

Method

Via an online questionnaire, 421 musicians (female/male = 254/167; professional/student = 120/301; Mean age = 25 years, *SD* = 8.8; Min/Max = 18/68 years) reported their musical practice goals and a personality measure based on the Five-Factor Model (McCrae & Costa, 1985). They also completed two DES scales (7-point Likert, derived from a circumplex model of emotion), indicating how much they desired to either (a) increase or (b) decrease the intensity of different practice-related emotions. Data were analyzed via Bayesian Mixed Effects models using R 4.2.0.

Results

Overall, musicians desired positive emotions more than negative emotions (t (420) = 58.135, $p < .001$). Personality traits impacted musicians' desire to increase or decrease different emotions to different extents. For example, greater Agreeableness predicted stronger desire to increase happiness (*Est.* = 0.13, *SE* = .04, *Odds*(Est > 0) = 3499) and energy (*Est.* = .13, *SE* = .04, *Odds*(Est > 0) > 9999), but not negative emotions such as anger. In contrast, higher Openness (*Est.* = .09, *SE* = .03, *Odds*(Est > 0) = 2332.33) and Extraversion (*Est* = *.05, SE* = .03, *Odds*(Est > 0) = 43.03) were associated with greater desire to increase anger, but not pleasant emotions. In terms of musicians' desire for trait-consistent affect when pursuing mastery goals: musicians who had higher scores for Agreeableness and had stronger mastery goal orientation reported

greater desire for trait-consistent happiness (*Est.* = .07, *SE* = .04, *Odds*(Est > 0) = 29.47) and focus (*Est.* = .08, *SE* = 68.08, *Odds*(Est > 0) = 61.08). In contrast however, musicians who had higher Conscientiousness scores and had stronger mastery orientation reported trait-*inconsistent* DES, indicating less desire to up-regulate calmness (*Est.* = -.05, *SE* = .03, *Odds*(Est < 0) = 433.61) and focus (*Est.* = -.06, *SE* = .03, *Odds*(Est < 0) = 110.55).

Conclusions

Musicians' DES generally consisted of up-regulated pleasant affect and reduction of unpleasant affect. Findings complement research which suggests that some musicians may wish to increase unpleasant emotions in conjunction with pleasant emotions (Breaden Madden & Jabusch, 2021). As trait-consistent affect is associated with better performance, it is important to clarify if and how different musicians with contrasting personalities can deploy different emotion regulation strategies in order to achieve specific practice outcomes. This and future studies may contribute to a better understanding of individual differences in emotion regulation ability as a potential aspect of individualized practice strategies.

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Keywords: emotion, trait-consistent affect regulation, musical practice, personality, desired emotional state.

Thematic Session 5

MUSIC PERCEPTION 2

The impact of long-term playing of a musical instrument on the sensation and perception of acoustic phenomena

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Background

It is evident that during educational practice, when music is transmitted by standardized musical signs and symbols necessary to communicate about music, the musical understanding goes beyond the universal graphical means, and each student perceives the same acoustic phenomena differently. Lipscomb (1996) argued that music is stored in our memory in a different form than its acoustic properties, using the term "apperception", indicating the importance of previously obtained knowledge and experience, which in this research refers to the long-term playing of a particular musical instrument.

Aims

The research aims to examine the differences in sensation and perception of acoustic phenomena (pitch, interval and tonality) between players of different types of instruments in a frame of Solfeggio classes.

Method

The respondents were students of the Music Academy, who have an average of 10 years of formal music education. The research involved string, brass, woodwind, piano, accordion, guitar, and percussion students. Focus group discussions identified the starting points in perception and cognition of pitch, intervals and tonality that relate to the playing of a particular instrument, based on which a questionnaire was created and applied to a sample of $N = 58$ students.

Results

The research affirmed differences in the process of perceiving acoustic phenomena between players of different instruments. Piano players mostly rely on visual associations related to piano keys. In contrast, players of string instruments find it harder to rely on any spatial associations, probably due to the instrument's construction and the body and hand posture required while playing. This is why they focus more on the timbre. Very interesting answers were given by the players of brass instruments, where respiratory motor commands are highlighted as very important in the perception of sound even when they are not physically attached to the instrument. On the other hand, guitar players find it too abstract to relate to their instrument in the process of perception, which is why they mostly rely on the music notation system, the same as percussionists.

Conclusions

The long-term playing of musical instruments significantly impacts the process of perception and cognition. Developing insights into how students understand and perceive acoustic phenomena has important implications for the development of the music curriculum in formal education, which could result in more successful encouragement and guidance in the development of musical skills.

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Keywords: long-term instrument playing, acoustic phenomena, perception, cognition, solfeggio.

Influence of sound registers on comprehension, memory, and notating music

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Background

The process of musical literacy in teaching solfeggio is based on various methods for coaching students to acquire diverse musical knowledge and skills. In addition, auditory and visual memory processes are involved (Vasiljević, 2000). Dictation is an important element of teaching. Literature with a two-bar repetitive approach to dictating, typically via piano on the middle register, is the most common practice in Serbia (Karan & Sedlar-Dabić, 2018). The question arises as to whether a change in the sound register of musical content intended for dictation would affect students accustomed to working on one-voice dictations in the middle piano register.

Aims

This exploratory research aimed to determine: 1) the relationship between the sound register and the accuracy of notating music through musical dictation (MD); 2) whether there are connections between gender, playing a certain instrument, school achievements, and Music Dictation Test results.

Method

The sample included 62 first-year students of the Faculty of Music in Belgrade: wind, piano, string, poly-instrumental, music pedagogy, composition, and voice department students, 65% female. The Music Dictation Test (MDT) consisted of three probation tasks and six tasks: two for each register (deep, medium, and high) compiled for this study and recorded in the Sibelius programme with synthesised piano sound, and a questionnaire with 12 questions for data collection (general, school achievements, previous educational practices in dictation tasks). In their regular class, students completed the MDT and questionnaire. SPSS for Windows 20.0 was used to analyse the data.

Results

ANOVA revealed that in MTD, tasks in the middle register had the best results (M = 21.53), while in the deep register had the lowest (M = 7.61). For deep register tasks, only the wind, poly-instrumental, and voice (WPV) department differs significantly from the piano department. Similarly, for middle and high register tasks, only the WPV department differs significantly from the compositions and pedagogy department. In all three registers, there is a positive correlation between higher Solfeggio grades and higher MTD results.

Conclusions

The results suggest that changes in sound registers affect the accuracy of MD notation. The use of the piano's middle register was not linked with MTD achievements. Still, frequent and continuous work on MD revealed a significant correlation with MTD achievement in tasks involving the middle and deep registers, giving intriguing results. The relatively small sample size is one of the study's limitations. In addition, this research can be significantly expanded to include more in-depth work on MD in different tonal registers and its relationship to other elements of Solfeggio.

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Keywords: melodic dictation, sound register, exploratory research, Solfeggio, music students.

Musical consonance and dissonance: The relevance of the horizontal dimension

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Background

The concept of consonance and dissonance (C/D) is a holistic phenomenon referring to the relationship between simultaneous (vertical C/D) and consecutive (horizontal C/D) tone combinations and how well they fit with each other. The vertical component has been investigated extensively, and numerous models attempt to calculate it considering a sonority's sensory roughness, harmonicity, and even its familiarity status (Harrison & Pearce, 2020). Although the horizontal dimension has been theoretically explored (Parncutt & Hair, 2011), it is rarely studied in tandem with the vertical dimension; nevertheless, significant research has been carried out in the past few years (see Johnson-Laird et al., 2012).

Aims

The goal of this study is to examine the impact of manipulating horizontal C/D while maintaining stable the vertical component. We argue that when horizontal expectations are altered or even negated in a chord progression by presenting its chords in retrograde order, its perceived dissonance will increase compared to the original version. When the context is unfamiliar (e.g., 12-tone), vertical C/D shall be more influential than the horizontal one.

Method

A series of six chord sequences are constructed, varying from tonally typical progressions with tonal triads (one tonal progression in a single key with a secondary dominant, and one with multiple) to 12-tone chord sequences of increasing degrees of vertical dissonance (two with 4-voice and one with 6-voice sonorities), and an additional odd sequence of dissonant non-tonal chords leading to a major triad. They were randomly presented in both their original and retrograde form. Ninety-one musicians and non-musicians were asked to rate the sequences' overall C/D and familiarity. Correlation analysis and an analysis of variance were employed to evaluate the results.

Results

Retrograde versions were perceived as significantly more dissonant than their original counterparts, regardless of the listeners' musicianship. The progression ending in a major triad was also regarded as significantly more consonant than its retrograde version. In the 12-tone progressions, hardly any differences were observed between the two versions (original and retrograde). Interestingly, the 12-tone progressions with sharp dissonances with 4-voices and 6-voices sounded equally dissonant to participants.

Conclusions

Apart from the C/D of the constituent vertical sonorities, horizontal context (i.e., chord/key hierarchies) and directional chord functionality contributes significantly to C/D perception of sequences. Judgements for tonal progressions are strongly influenced by fulfilling listeners' expectations; for unfamiliar non-tonal progressions, directionality had little effect. Finally, direction from dissonance to consonance (and vice versa) appears to be relevant, a case adhering to the tension-resolution schema and the closure effect.

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Keywords: consonance and dissonance, harmony, chord progressions, music perception, tonal expectations.

Periodic tempo fluctuations in musical output of major recording artists

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Background

Successful artists with long careers are known to reinvent themselves from time to time, such as by changing their image or manipulating characteristics of their music. One such characteristic is tempo. Given the age-related decrease in motor speed (Hammerschmidt et al., 2021; McAuley et al., 2006) and the intimate relationship between body movement and musical activity (Friberg & Sundberg, 1999; Luck & Toiviainen, 2012) an artist's output might be expected to slow in tempo as they age. Tempo cannot decrease indefinitely, however, and the tempo of an artist's output might be further expected to rise and fall over time.

Aims

To examine whether such tempo fluctuations are random or periodic, the tempi of music released throughout the careers of the world's most prominent artists were studied. Two alternate hypotheses were tested. H1: Average album tempo (AAT) will decrease across time with random fluctuations (linear fit). H2: AAT will decrease across time with more predictable, periodic fluctuations (nonlinear fit).

Method

One hundred and thirty-four albums containing 1497 songs released by the 10 all-time best-selling male and female solo artists with careers spanning at least 2 decades were selected for study (Eminem, Elvis Presley, Michael Jackson, Elton John, Lil Wayne, Mariah Carey, Madonna, Whitney Houston, Céline Dion, Shania Twain). The basic beat-level tempo of each track was obtained manually via a tapping task. Career length was defined in two ways: 1) Year of activity since the first album; 2) Album number.

Results

AAT was first standardized within-artist. Values were then combined and entered into two separate regression analyses, with a year of activity and album number as predictors, respectively. Statistically significant models were obtained for both predictors. Year of activity exhibited a negative linear relationship with AAT, $F(1, 26) = 25.36$, $R^2 = 0.49$, $p < .001$, supporting H1. Album number, meanwhile, exhibited a curvilinear relationship best fit with a quartic polynomial, $F(1, 25) = 9.88$, $R^2 = 0.61$, $p < .005$, with AAT being characterized by fluctuations around a 20-album period, supporting H2.

Conclusions

The tempo of music released by the world's most successful recording artists of the past 60 years rises and falls with a 20-album periodicity. Still, the overall tempo decreases over time. Each periodic increase might serve a reinvention purpose that nonetheless fails to completely counteract natural age-related tempo decline.

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Keywords: predictive modeling, motor tempo, periodicity, non-linear regression, songwriting.

Thematic Session 6

EVOLUTIONARY PERSPECTIVE OF MUSIC

Rhythm, body, brain

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Background

Musical rhythm triggers involuntary (as well as naturally voluntary) movement in the human body. We entrain ourselves to surrounding rhythms, and musical rhythm activates motor areas in the brain even though we would not deliberately, consciously move our body (Grahn & Brett, 2007). As there very seldom is music without rhythm, one of the arguments could be that musical training, in general, can be seen as rhythm training of its own. The literature indicates various forms of music/musical rhythm training to be beneficial for human cognition, from instrumental training to dance instruction (Shen et al., 2020). In literacy skills, rhythm interventions are argued to be effective in relation to reading impairments; both as predictive and rehabilitation tools (Bégel et al., 2022).

Aims

A systematic review focusing on rhythm elicited movement, and its impacts on executive functions will be presented. The aim of the implemented review was to identify the types of interventions conducted and provide an overview of the observed findings. We chose to focus on *executive functions,* which are highly relevant for cognitive processing (Goswami, 2019). The overall hypothesis was that there is a lack of a sufficient high-quality research in the field (Sala & Gobet, 2020).

Main contribution

Intervention studies from 4 data bases (Web of Science, PubMed, ERIC, and APA Psyarticles and info) were reviewed, altogether 15677 records. The review was conducted between October 2021 and May 2022. The final number of eligibility matching research papers was 21. Out of the 21 research reports, nine were conducted with pre-school or school aged children (3- to 11-year-old children) and 12 with older adult (55 to 94-year-old) populations. The lack of adolescent and young adult population studies on the subject was evident. Out of the 12 older adult intervention studies, 10 were *dance intervention* studies, and 2 were musical trainings defined as *cognitive music training* and *rhythmic musical training*. Within the child-cohort, the interventions were more diverse; only three were strictly studying the impact of a *dance intervention,* while the six remaining studies used different rhythmic programs defined, e.g., as *sensory entrainment training* or *rhythm-based training*. One criteria-matching study used dance training as a control training for the general music intervention. Overall, the small number of

music-focused eligibility criteria matching studies is striking, considering that rhythm is a core element of music. One challenge may be identifying and articulating music interventions as rhythm interventions.

Implications

The final data is small but interesting and points out that there is a lack of clear accounts of the actual intervention methods. This affects the replicability possibilities of the research settings, thus dramatically diminishing the research quality. As the literature indicated (Sala & Gobet, 2020) and we hypothesized, the number of eligibility criteria matching research is small. Our findings encourage more research on the topic.

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Keywords: rhythm, musical rhythm, body, cognition, brain.

Differences in domain flexibility between music and language syntaxes as indicators of the prelingual origin of music syntax

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Background

The auditory channel is a default mode of natural language and music. Yet, in contrast to music, most speech properties can be converted to the spatio-visual domain (cf. sign languages). This cross-modal character of natural language raises controversy concerning the origin of syntax understood as a communicative system of generative rules that combines signals with cognitive hierarchies.

Aims

The main aim of this presentation is to propose an evolutionary scenario in which a parallel evolution of rhythm and pitch proto-syntaxes were the preadaptations for the emergence of both complex language and music syntaxes.

Main contribution

In order to trace a sequence of events that led to the evolution of music syntax, the comparison between language and music is proposed. Knowing similarities and differences, a regressive analysis of their evolution is possible. This regressive analysis traces the sequential appearances of different traits on a timescale. For instance, the presence of "expressive dynamics" (Merker, 2003) in mammalian vocalizations allows us to assume that prosody consists of features that evolved before language. In contrast, the species-specific character of music and speech suggests that they had to evolve relatively recent.

It has been proposed that syntaxes represent the results of a general human-specific tendency (*dendrophilia*) to organize the perceptive entities into tree-like structures (Fitch, 2017). However, such syntaxes seem to work in disparate ways. For example, natural language is the only natural communicative system that combines a hierarchical syntax with propositional meaning. In contrast, music syntax does not connect with propositional meaning (Lerdahl, 2013). Instead, music seems to combine sound order with emotions. However, while rhythm syntax is achievable by means of movements (e.g., dance movements) and tactile sensations, pitch syntax seems to be unimodal. Apart from these differences, the syntactic relations in music are felt rather than inferred by means of conceptual operations as it takes place in recognition of grammar.

Implications

Taking into account that the conceptual complexity of human communication is evolutionarily younger than signalling based on emotional induction, it is reasonable to suppose that grammar evolved after the emergence of rhythm and pitch proto-syntaxes. From this perspective,

the emergence of language syntax could have been a result of adapting cognitive mechanisms of hierarchically complex. The pre-conceptual proto-syntaxes operating in both auditory and spatio-visual domains with gestural conceptual lexicon (as in the case of pantomime), leaving a complex pitch syntax in a solely musical domain. This view suggests a separate origin of concepts and syntax and indicates the crucial role of the spatio-visual domain in the appearance of the conceptual mind.

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Keywords: pitch syntax, rhythm syntax, grammar, preconceptual meaning, conceptual meaning.

Adaptive functions of musical signals: Olfactory compensation, conspecific orientation, and spatio-motive landing

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Background

Music is a complex acoustic phenomenon produced primarily by a single species, namely humans. However, many other species produce sounds (e.g., song-like calls and music-like note progressions) which overlap considerably with the acoustic features fundamentally present in most human societies (Darwin, 1871). A small but robust subset of key features of human music arguably includes tone, interval, rhythm, repetition, transposition, and syllabic diversity (Schruth et al., 2021). These can be found to varying degrees in the calls of non-human primates – and, when analyzed via exploratory statistical methods, have yielded a possibly zoologically applicable index of musicality useful for comparing origins of this phenomenon across species.

Aims

Equipped with this newly developed acoustic (syllable) reappearance diversity index [ARDI] of musicality (Schruth et al., 2021), I endeavored to compare various levels of musical output of species with aspects of their unique ecological settings. Typical factors influencing vocalization, such as morphology (e.g., mass, age, sex, and dimorphism), immediate behavioral contexts (e.g., contact, foraging, and display), as well as more habitual ones (e.g., sex ratio, group size, monogamy, diurnality, arboreality, territoriality, predation, and acrobatic locomotion) were considered.

Methods

ARDI was developed using PCA on the above-mentioned six features [*see Background*] prevalent in human music utterances (Schruth et al., 2021). Using ARDI scores on non-human primate vocalizations in conjunction with typical song counts in other species (e.g., whales and birds), I was able to interrogate (e.g., using multivariate linear regression) the above array of candidate ecological variables [*see Aims*] as evolutionary instigative. For primates, specifically, I was also able to compare brain component volumes ($n = 42$) with vocal complexity (Schruth, 2021b).

Results

Many of the above factors were found to have a moderate influence on complex vocal signaling behavior across species. Most of these factors had positive associations with the exception of group size (mixed), sex (neutral), and predation (negative). That is, both sexes of members of small, family-sized groups (Schruth et al., 2021) that experience less predation (Schruth & Jordania, 2020) tend to make more musical vocalizations. Also interesting is that these species tend to live in chemically dilute environments and have reduced olfactory neural capacities. In

primates the schizocortex and hippocampus have marginally positive correlations with musical (high ARDI) calls, suggesting a possible role in spatial orientation (Schruth, 2021b) as well. Most convincingly, however, visual areas (e.g., visual cortex and LGN) are even more strongly correlated with musical calling in primates, suggestive of a more locomotion relevant signaling function (Schruth, 2021b).

Conclusions

Primarily, animals appear to have initially evolved complex vocalizations to compensate for a loss of olfaction in chemically dilute environments. This compensation may have manifested as articulation and discretization of distinct syllabic acoustic structures. Secondarily, animals appear to use musical calls to remain in acoustic contact and spatially orient with conspecifics during foraging and ranging in visually occluded environments. This second ecological pressure likely engendered highly intervalic and transpositional elements in calls to compensate for ambient noise of acoustic sound-scapes. Lastly, effective anti-predational tactics, in many vocally communicating species, could have not only required higher proficiency in evasive locomotion and associated precision in "spatio-motive landing", but also emboldened an expansion of such intra-group contact calls into more externally facing territorial displays (Schruth, 2021a). This third ecological pressure, influencing the co-evolutionary interplay of motor-eye coordination with musical-acoustic output, may have augmented levels of precision in reappearance (both repetition and transposition) for an increasingly diverse assemblage of spectral shapes.

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Keywords: singing, spatial, leaping, brachiation, focus.

Thematic Session 7

EMOTION AND EXPRESSION IN MUSIC 1

Performing *Amazing Grace*: The function of time, technology and style in expressive characteristics and their reception

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Background

The research on expressive performance characteristics, such as portamento, tempo, dynamics, vibrato etc., has been considerably deepened during the last decades. Certain questions, such as changes in the expressive qualities of portamento over time in classical music (Leech-Wilkinson, 2006 and others) and the perception of expressivity from a psychological perspective (e.g., Sloboda) have received particular attention. This paper represents a continuation of previous research by the author in the realm of performance expressivity (e.g., Kaufman 2022) by using a research sample that includes performers from non-classical backgrounds and by performing an audience reception study.

Aims

The main aim of the study is to discern how much of the expressive quality of certain performance elements, like portamento, is likely to be derived from time-dependent or stylistic cultural cues and how much might stem from more intrinsic aspects of the performance.

Method

This study will analyse clearly defined expressive characteristics (portamento, vibrato, tempo, dynamics, and phrasing) in eighteen recorded Amazing Grace performances, ranging from 1922 to 2020, by singers from different musical backgrounds and countries, through direct observation and the software tool Sonic Visualizer. The data on range, frequency, placement, and quality of these characteristics will be collected in line with commonly used parameters for performance research, then corroborated by image using software and given a rating within the sample. These results will be compared with the survey data from an audience reception study with non-musician adults, which studies the expressivity perception of the performances by asking participants to rate the expressive qualities of audio excerpts. The aim is not to examine the emotion elicited in the listeners (Juslin & Laukka, 2004) but to assert the influence of specific performance characteristics on the overall perceived expressivity by modern-day listeners.

Results

This study is still in progress, but the first analysis regarding expressive elements shows significant differences over time in all style genres and some overlap in expressive patterns between singers trained in different musical styles. Previous studies have shown a certain dependency on generational context for expressivity reception, which this study might corroborate. At the same time, it will further connect specific performance characteristics to audience preferences across musical style genres.

Conclusions

The findings from this study have the potential to further our understanding of the importance of temporal and stylistic contexts on the expressive properties of specific performance elements. It is expected that the study could have implications for the field of music expressivity and deepen the connection between the fields of historic performance research and music psychology. Future research into audience reception and expressivity could corroborate these findings and outline possible implications for music-educational settings.

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Keywords: expressivity, performance, reception, recordings, singers.

Conjuring sound: Mimesis and guitar virtuosity

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Background

The use of mimesis to convey notions of instrumental virtuosity has been previously identified by Kawabata (2013) who noted that during his performances violinist Paganini employed "devices of mimesis, imitating the cries of animals, human voices, and musical instruments other than the violin." (p. 12). The influence of Paganini and the classical music model of virtuosity on rock and metal guitarists have been discussed by several authors, including Custodis (2011), who claimed that "most clichés and connotations of the guitar virtuoso combine elements of historical role models of 19th century's icons, Paganini and Liszt, with the distortion sound and the habitus of playing an electric guitar." (p. 1). Walser and Berger (1993) observed that "From the very beginnings of heavy metal in the late 1960s, guitar players had experimented with the musical materials of eighteenth and nineteenth century European composers" (p. 63).

Aims

This paper aims to explore both how and why rock and metal guitarists from the 1960s onwards have employed mimesis to convey notions of virtuosity and instrumental mastery to their audiences.

Main contribution

This paper begins by identifying several examples of guitarists employing techniques of mimesis similar to those used by Paganini, including Van Halen's mimicry of various animal sounds and other instruments, Vai's numerous impersonations of the human voice, and Morello, Li and Buckethead's recreations of helicopters, vinyl scratching, synthesizers, motorbikes and video game sound effects. How these sounds are created and the manner in which the audience might interpret them is analyzed and discussed. The paper proposes that the ability to imitate sounds other than those traditionally associated with the guitar form an important part of the musical toolkit rock and metal guitarists use to encode and communicate virtuosity in their performances.

Implications

This paper identifies the previously under-explored use of mimesis within the vocabulary of rock and metal guitar players. It examines how it contributes to the communication of virtuosity within this field.

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Keywords: virtuosity, mimesis, rock guitar, metal guitar, Paganini.

A technical strategy to reduce movement (SMRD) in the practice of *Danza Criolla V* for piano by Ginastera – organization and protocol of a case study

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Background

In this paper, we present descriptive data from a practical and experimental case study in progress, with the participation of a pianist subject. Correct motor habits by individualizing and rearranging primary movements allow the pianists to focus their attention on targeted movements and learn the musical content for each hand, thereby developing essential skills to perform complex movements. This type of training is effective and simplifies intellectual concepts and motor coordination (Maggil, 2002; Schmidt & Wrisberg, 2008). Therefore, the possibility of simplifying movements between two notes or music events by reducing the initial distance between them is a possibility to be considered.

During piano practice, musical and technical situations require hands and arms displacements of medium and long distances on the keyboard (Verdugo et al., 2020). Reducing movement time minimizes tension and energy, qualities of proficient motor skills and determinants of successful performance (Schmidt & Wrisberg, 2008). Voluntary acts transformed into automated systems are reflections of cognitively acquired habits as a final product of the motor learning process. "From the point of view of the instrumental performance, the acquisition and subsequent reorganization of habits" (Kaplan, 1987, p. 45), are the basis of technical construction.

Aims

To simplify movements by reducing distances (SMRD) between events as an auxiliary technical strategy to create coordination references of complex gestures always according to the required sound objective, we intend to test a technical resource focused on movement reduction – SMRD (Póvoas, 2008) while practising the *Danza Criolla V* by Alberto Ginastera. The main goals of this work are to establish a protocol and define categories for the evaluation of the proposed resource in a future experimental procedure with the participation of a bigger number of pianists subjects and discuss and establish theoretical and practical connections among arguments related to motor coordination and proposed technical strategies of the organization and movement control.

Method

We intend to organize and establish a protocol to assess the use of proposed SMRD strategies through qualitative and quantitative analysis (a biomechanical experiment and kinemetry) regarding instrumental performance optimization. The results will contribute to the evaluation and validation of the proposal. Descriptions include the stages of experimental study organi-

zation, the training protocol and data collection at the Laboratory of Human Movement at ESSUA Laboratory (Aveiro University), the equipment used and partial results.

Results

Our findings conclude that practising the proposed strategy during specific music excerpts can enhance performance. Considering the variables, we hypothesize that SMRD makes it possible to play musical events far from each other through more organic movements with greater security and control, having a positive correlation to a musical performance at the piano.

Conclusions

The correlations identified allow us to anticipate benefits for the piano technique.

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Keywords: piano technique, movement reduction, case study, experimental procedure.

Elements of universal emotional expression in the musical rhetoric of 17th and 18th century European music

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Background

Affektenlehre is a theory developed by 17th and 18th century music theorists, implying that in music, there are sound patterns – rhetorical-musical figures – which were used, among other things, to express the affects and emotional states. The figures could reflect the basic emotional categories such as sadness, anger, happiness, and love. Over the years, many different codification systems have been developed (e.g., Kircher's, Burmeister's, Bernhard's, Mattheson's). In historical musicology, the occurrence of musical-rhetorical figures in the widespread musical repertoire of the 17th and 18th centuries, were treated as an example of a conventional communicative code and element of composers' craftsmanship. However, music psychology research has indicated the existence of universal features of human sound expression and their presence in musical communication (Bowling, 2012; Huron, 2008). The question arises, then, whether rhetorical-musical figures are just a conventional musical code or their musical structure contains elements of universal sound expression of human emotions?

Aims

The paper aims to show an original method of analyzing the musical structure of rhetorical-musical figures referring to emotions in terms of the size of intervals, melodic ambitus, melodic contour, tempo of musical events, and to verify a claim of the exclusively conventional character of rhetorical-musical figures in the European musical works of the 17th and 18th centuries.

Main contribution

The paper concerns issues related to the universality of communicative musical phenomena, which is present in recent scientific works combining psychological, sociological, and musicological issues (Anderson & Schutz, 2021; Mehr et al., 2019). The research is based on methods of analysis derived from music psychology. It shows an uncommon way of interpreting rhetorical-musical figures appearing in the scores of 17th and 18th century works in terms of the presence of elements of universal sound expression of human emotions.

Implications

The present paper may become an interesting contribution to discussions about the use of achievements of music psychology in the research in the field of music historiography. The results of the research may suggest that there are universal elements of emotional expression in rhetorical-musical figures that can be useful for a new understanding of rhetorical-musical figures in historical musicology, e.g., change the established view that *Affektenlehre* is only a cultural invention.

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Keywords: musical rhetoric, universality, emotions, musical expression of emotions.

Thematic Session 8

MUSIC COGNITION

Ways of implementing music improvisation into different educational settings

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Background

Music improvisation, as a form of musical creativity, is one of the most integrative musical activities because it develops musical abilities, facilitates the transfer of learning mechanisms (Biasutti, 2017), builds musical understanding (Gruenhagen & Whitcomb, 2014), enables the expression of emotions, is a motivational factor for learning music (Pucihar, 2016), and encourages risk-taking and self-reflection (Edmund & Keller, 2019). In literature, several strategies for implementing music improvisation in educational settings are discussed (Biasutti, 2017). Challenges and fears with performing music improvisation are mainly connected with insufficient opportunities for developing improvisational skills on tertiary educational level (Bačlija Sušić et al., 2019).

Aims

This study aimed to explore the possibilities and challenges of implementing music improvisation in different educational settings. We were also keen to examine where one can acquire adequate knowledge and skills in music improvisation, whether music improvisation activities can shape the relationship between teacher and pupil(s), and the importance of rich musical experience when performing music improvisation activities.

Method

The present study uses a qualitative approach to research the pedagogical theme. Music educators (n = 9) from different countries (Slovenia, Croatia, Montenegro, Italy, UK) with rich experience in research and applying music improvisation took part in semi-structured interviews that included questions about the inclusion of music improvisation activities in education and their own experience with its implementation. The data set was examined using thematic content analysis with a grounded theory approach.

Results

Participants emphasized several successful strategies of music improvisation implementation, their concepts of music improvisation importance, but also some challenges that emerge when performing improvisational activities with ways to overcome them. They stressed the effect improvisation could have on musical expression and the acquisition of music theory knowledge. Participants also discussed the possibility of gaining improvisational knowledge in tertiary education and informal settings.

Conclusions

The findings are discussed in the framework of general theories of music improvisation, highlighting the implications of adopting music improvisation activities in educational settings and their importance. Music educators highly value the inclusion of improvisational activities in education. Based on our findings, we can conclude that music improvisation can be beneficial for a better understanding of music theory concepts, students' general well-being and musical expression. Therefore, it is important to encourage it in different educational settings.

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Keywords: music improvisation, education, strategies, challenges, teachers' views.

How contemporary composers think about creativity in music?

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Background

Prior studies from the field of music psychology indicate that composing artistic music is "a primarily cognitive activity aimed at the production of a music structure that is adequately organized, emphasizing metacognitive processes, as processes of thinking during the process of composing itself." (Bogunović, 2019, p. 11). Such conclusions can raise a general question of the relationship between the *music itself*, as a materialized sound phenomenon noted down in a score and *thinking about music* – as thinking about and during the process of composing. Along with this, some authors of up to now studies giving an effort to understand how *general creativity* is reflected in *specific creativity* and what are the key factors of this conversion. (Sternberg, 2009, Bear, 2015).

Aims

If "the greatest challenge in understanding the domain-generality versus specificity of creativity is in understanding the concept of a domain itself" (Sternberg, 2009, p. 25) we intended to conclude how composers think about their specific domain of music creativity. We want to know more about themes the process of composers' thinking is organized off. Secondly, about the resulting of an 'overflow' of musical thinking into a concrete poetic process being written down as a musical structure and therefore an outcome of a creative act.

Method

The research is conducted on a sample of 16 composers who share a specific institutionalized context of contemporary artistic music. The respondents are students (13) and professors (3) of the Department of Composition, Faculty of Music, University of Arts in Belgrade. The specific set of 9 online open-ended questions was prompted to answer the research question. The answers are collected and analyzed by bottom-up thematic analysis (Williamon et al., 2021, p. 231). The top-down approach is also taken by using the preexisting theoretical framework of "conceptual space" from the prior study of creativity (Boden, 1998, p. 18) as a starting point to organize and interpret identified themes of composers' thinking on the domain of musical creativity.

Results

The thematic analysis showed that there are metacognitive/conceptual categories that composers attribute to the act of composing, as patterns for an understanding of musical creativity from their self-perspectives. The themes that define their conceptual space of musical creativity are: 1) attitude on creativity; 2) 'two-side' mirror of musical creativity – music idea and sound result; 3) creation as a multiphase process; 4) deep immersion into the other composers' cre-

ativities; 5) improvisation and intuition; 6) composing technique; 7) aesthetic experience; 8) factors and knowledge beyond stylistics and 9) music as a pure sound and aural phenomena. We treat identified themes as organizing principles that unify specific domains of musical creativity reflections and conceptualizations. The identified categories of themes have variable appearances within the individual composers.

Conclusions

In defining the conceptual space of creativity, aesthetic music experience and technical music creation skills are emphasized as the most important by respondents. Without these two categories, the satisfied and valuable results within the artistic music field would not be reached. The answers of more experienced composers also tend to emphasize the good working conditions for the compositional process and look at broader aspects of the artistic field of production. All respondents share a common focus on sound and immanently musical – aesthetic, poietic, and stylistic – categories of thinking about music creativity.

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Keywords: music creativity, composing, contemporary music, thinking.

The capacity for music: 'Navigating' the musical process

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Background

Most theories of musical ability and usual pedagogical practice equally fail to address the facts that in order to produce expressiveness, music performers not only express but also empathise feelings (i.e., *einfühlen* in German) and that performances happen in real time. However, these attributes are among the most important qualities of a musical performance to be accounted for in the theory and pedagogy of performance skills, as well as in theories of musical ability.

Aims

My recently published model for performers' phenomenological processes and attentional strategies underlying expressiveness (Stachó 2018) focuses on performers' real-time cognitive and affective processing during performance and considers the fact that the act of performance occurs in real time. In my paper, I intend to outline how the model accounts for what can be considered as the essence of the capacity for music, and how it may be implemented into pedagogical practice, yielding a particularly powerful tool in the pedagogy of musical performance.

Main contribution

I argue that the capacity for music relies on performers' ability to uncover subjective 'meanings' from musical materials and to feel them (cf. *einfühlen*) in the act of performance with full concentration. Full concentration is fostered through the capacity to 'navigate' the musical flow, i.e., through the performer's ability to cognitively and affectively position into the future, in the past, and in the present in the act of performance by means of focused immersion at well-definable moments ('moments of focused immersion' [MFIs], Stachó 2018). Accordingly, the ability of real-time 'navigation' of the musical flow includes the sub-abilities (1) to actively imagine the upcoming structural units (i.e., to estimate by feeling their durations through forming a mental image of them), (2) to form a clear mental image of the past musical units to which the upcoming ones are to be measured, and (3) to deeply feel the present moment. This 'navigating' ability can be developed and boosted relatively easily in most people, including those scoring poor on standard musical aptitude tests measuring 'melodic', 'rhythmic', or 'harmonic' skills such as discriminating or reproducing melodic, rhythmic, or harmonic stimuli.

Implications

The above model of the performer's processes and attentional strategies relies on theoretical and empirical research in music analysis and phenomenology (e.g., Dobszay 2012, Husserl 1893–1917/1966), music psychology (e.g., Jackendoff & Lerdahl 2006), sport psychology and attention research (e.g., Savelsbergh et al., 2002), as well as on hypotheses based on pedagogical practice. Besides the model's strong potential for applications in music pedagogy, further devel-

opment and operationalisation of the core theory can open the way for an innovative cognitive approach in music theory, analysis and aesthetics.

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Keywords: phenomenology of music performance, attentional strategies, mental navigation, musical ability, performance education.

"But I *like* that you can't hear me": Unexpected outcomes in online music lessons

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Background

The transition to exclusively remote instruction prompted by Covid-19 necessitated a fundamental rethink of existing music teaching strategies (Camlin & Lisboa, 2021). Synchronous video conferencing software commonly used to replace face-to-face lessons has inherent sound transmission limitations (latency, noise suppression etc), preventing spontaneous collaborative music-making (Bartlette et al., 2006). One of my students wished to learn folk harmonising, a situated learning practice (Lave, 1991), traditionally passed informally through imitation. Without pre-existing research on strategies for managing the lack of contextual immersion and aural feedback in the Virtual Learning Environment, (VLE), we developed a new approach.

Aims

Design and implement an inductive action research inquiry investigating how we might continue our learning trajectory despite the technological limitations of lockdown. The particularistic experience of one student foregrounds general issues surrounding remote teaching. Themes: (1) Investigate solutions to the difficulties of developing audiation skills in online synchronous settings, (2) Trial alternative pedagogical paradigms suitable for VLE. (3) Improve student-teacher experience of remote lessons through sequential testing and technological adjustments.

Method

Transformative action was sought through Participatory Action Research: iterative cycles of practice, theory, reflection and analysis. Using an adjusted Kemmis-McTaggart Spiral (Kemmis et al., 2013) and framed by the TPACK model, (Best remote learning practice requires synthesis of Technology, Pedagogy, and Content Knowledge) (Mishra & Koehler, 2006), I embedded phases of diagnosis, action and reflection into six one-hour Zoom lessons. Data: Recording / transcript, interview, reports, semi-scripted summative feedback, time use categorisation, skill level assessments. Impressions were generated via student feedback and teacher observation of emerging themes. Shifting goals informed the redesign of following sessions: each cycle aids TP adjustment, maximising content delivery.

Results

Recordings showed effectiveness of interventions in delivering TPACK criteria: *T.P.* = Mastering *technology* improved session time use. *Pedagogical* choice of flipped learning freeing up mimicry time, increased critical reflection, improving *Content* understanding: skill levels assessments provided tentative evidence of improvement in pitch accuracy and musical memory. Despite improvement, student reports "*I don't really know what I'm doing!*", suggesting that without contextual feedback, she is unaware of her own competence. Student unexpectedly reported

enjoyment of sonically inconsistent conditions. *"It takes the pressure off!"*, revealing insights into her learning preferences "I *like* that you can't hear me!"

Conclusions

Lack of aural feedback and visual nuance appeared not to adversely affect student progress or enjoyment. Working through unchartered territory together revealed fresh insights into learning styles and transmission methods and tentatively suggested some aspects of aural learning can be absorbed remotely. The question "What is impossible in this environment?" became "Might there be unexpected benefits from the COVID-19 constraints?"

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Keywords: flipped learning, technological pedagogical content knowledge, singing, remote learning.

Thematic Session 9

PERSONALITY AND MOTIVATION IN MUSIC PERFORMANCE

Personality facets and creative self-beliefs

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Background

In recent decades, research suggested that one set of individual factors contributing to creative self-beliefs are personality traits. A meta-analysis showed that personality traits (the Big Five and Huge Two) are associated with creative self-beliefs (Karwowski & Lebuda, 2016). The authors suggested that in future studies, these associations should be examined using personality facets and aspects since narrow traits are better predictors particularly of narrow outcomes (Anglim & O'Connor, 2019). In addition, most studies examined these associations in non-musician samples.

Aims

We wanted to examine how personality facets are associated with creative self-efficacy (CSE) and creative personal identity (CPI) in a sample of a cappella singers.

Method

A total of 127 individuals (64% women) participated in the study. Participants were members of 18 conveniently sampled Croatian traditional a cappella groups. Personality facets were measured with the BFI-2 questionnaire (Soto & John, 2017), while creative self-beliefs were measured with the Short Scale of Creative Self (Karwowski et al., 2018).

Results

Highest correlations with CSE were found for creative imagination ($r = .67$, $p < .001$), an open-mindedness facet, and energy level ($r = .52$, $p < .001$), an extraversion facet, while with CPI for all open-mindedness facets, creative imagination ($r = .65$, $p < .001$), aesthetic sensitivity ($r = .46$, $p < .001$) and intellectual curiosity ($r = .45$, $p < .001$), respectively. In linear regression analysis, when we entered all significantly correlated personality facets and controlled for their intercorrelations, the only significant predictor, with the model explaining 49% of CSE and 45% of CPI variance, was the creative imagination facet ($\beta_{CSE} = .46$, $p < .001$; $\beta_{CPI} = .50$, $p < .001$).

Conclusions

This study adds to the literature by examining the association between creative self-beliefs and personality measured at the facet level and using a sample of singers. Results are in line with previous findings (Karwowski et al., 2013; Karwowski & Lebuda, 2016), showing that creative imagination, an open-mindedness facet with its focus on creativity and originality, has the strongest associations with CSE and CPI in both correlation and regression analyses.

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Keywords: creative self-beliefs, personality facets, singers.

What drives music: The relationship between psychological needs, motivation, and success in music in high-school music students

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Background

Being among the main drivers of goal-oriented behavior, psychological needs and motivation are the subject of numerous studies concerning music education (e.g., Chen et al., 2015; Freer & Evans, 2018). These concepts are integrated into Self-Determination Theory (SDT; Ryan & Deci, 2017), which is the starting point of this research aiming to contribute to the knowledge about their relationship in the Serbian music education context and their possible relationship to success in music.

Aims

We are exploring the relationship between psychological needs, motivation and self-estimated success in music (SESIM), as well as possible differences between students of different sex, age and department when it comes to these three concepts.

Method

A convenience sample comprising 207 high-school students from six music schools in Serbia (age: M = 16.45, SD = 1.42; 75 male, 121 female, 11 other; 61 theoretical [TD], 146 vocal-instrumental departments [VID]) filled in online BPNSFS Music (24 5-point Likert-type items composing three psychological needs subscales: *Autonomy*, *Relatedness*, and *Competence*; Chen et al., 2014), RAI-SRQ Music (24 7-point Likert-type items containing six motivation subscales: *Amotivation*, *Extrinsic Motivation*, *Negative Introjection*, *Positive Introjection*, *Identification*, and *Extrinsic Motivation*, combined forming Relative Autonomy Index [RAI]; Sheldon et al., 2017), and 7-point Likert-type single item estimating their success in music.

Results

A multiple regression analysis showed that scores on all BPNSFS Music subscales and SESIM can account for 18.5% of RAI's variance, $F(4,170) = 10.90$, $p < .001$, with *Relatedness*, $\beta = .18$, $p < .05$, and SESIM, $\beta = .37$, $p < .001$, as significant predictors. Most of the observed group differences were between students stemming from different departments. Thus, students from VIDs scored higher on the BPNSFS Music's *Autonomy* subscale, $t(197) = -2.433$, $p < .05$, on RAI-SQR Music's *Intrinsic Motivation* subscale, $t(96) = -2.215$, $p < .05$, and had higher RAI, $t(97) = -2.181$, $p < .05$, than their peers from TDs. Meanwhile, students enrolled in the TDs scored higher on RAI-SQR Music's *Amotivation* subscale than their peers in VIDs, $t(97) = 2.023$, $p < .05$.

Conclusions

Results generally confirm that psychological needs and self-efficiency have an impact on the motivational profile of music students. Further, in adolescence, *Relatedness* to a close musical environment (e.g., teachers, peers) plays a role in self-determined behavior. Compared to their peers, non-performing students seem to be not that driven by inner resources when music behavior and activities are in question. Lower inner motivation of MTD students could be explained by the notion that studying music theory often isn't their first choice.

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Keywords: psychological needs, Self-Determination Theory, music school students.

The relationship between mindfulness, success in music and music performance anxiety in high-school music pupils

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Background

Music performance anxiety (MPA) can seriously undermine a musician's career and overall well-being (according to Phillipe et al., 2021), so it is not surprising that it attracts the attention of both researchers and practitioners, musicians, and psychologists alike. Since mindfulness has been positively associated with various aspects of psychological well-being (Brown & Ryan, 2003), and some evidence exists that courses and intervention programs involving mindfulness training can alleviate symptoms of MPA (e.g. Czajkowski et al., 2020), we were interested in examining the relationship between these constructs.

Aims

We are exploring the latent structure of the instruments measuring MPA and mindfulness and examining the relationship between MPA, mindfulness and success in music.

Method

As part of a more extensive online study, 207 students from six music high schools in Serbia (age: M = 16.45, SD = 1.42) were administered the K-MPAI-R (40 7-point Likert-type items measuring MPA; Kenny, 2017), MAAS (15 6-point Likert-type items measuring mindfulness; Brown & Ryan, 2003) and they self-estimated their success in music (7-point single item scale).

Results

After conducting exploratory factor analysis (EFA) with 34 items of the K-MPAI-R (N = 195, Maximum likelihood, Oblimin, KMO = .925, χ^2 (561) = 3822.948, $p < .001$), we retained a three-factor solution, shown by the scree-plot, accounting for 47.02% of the variance. The first factor was interpreted as Performance-specific anxiety (15 items, α = .933), the second as Depressiveness (12 items, α = .836) and the third as General anxiety (7 items, α = .874). An EFA of the MAAS (N = 201, Maximum likelihood, KMO = .893, $\chi^2(105)$ = 824.874, $p < .001$) yielded a one-factor solution, α = .844, accounting for 29.79% of the variance.

A multiple regression analysis (MRA) showed that the MAAS total score and self-estimated success in music account for 31.5% of the variance in K-MPAI-R total scores, $F(2, 186)$ = 42.832, $p < .001$. Six MAAS items, and self-estimated success in music can account for 39.6% of the variance in K-MPA-R total scores, $F(7, 181)$ = 16.982, $p < .001$.

Conclusions

In further exploring and improving the properties of the employed instruments, the possibility of devising a resilience subscale of MPA, based on the items excluded from EFA, might be an interesting route to follow. The data obtained through MRA suggest the possibility of devising an MPA explanation model which could render guidelines to music-school psychologists in providing support to their students and result in a test battery for MPA screening.

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Keywords: music performance anxiety, mindfulness, K-MPAI-R scale, MAAS, success in music.

Investigating practice efficiency and self-efficacy for self-regulation of music students in Serbia

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Background

During the last three decades, researchers and teachers have worked together to develop useful pedagogical approaches for enhancing the quality of one's practice. It is found that those who can be described as self-regulated learners are able to plan and use their time for practice more effectively, sustain deliberation/motivation, evaluate learning activities better than others, and have a higher level of self-efficacy (McPherson & Zimmerman, 2011; Miksza 2015; Jović, 2014) The theoretical base for our study is represented by pedagogical works with researched focus of musicians' practice behaviors, development of practicing strategies, and practical implication of self-regulated learning (SRL) during practicing.

Aims

The main purpose of this study was to examine the self-assessment regarding the practice efficiency of music players in Serbia, as well as their perceived efficacy for self-regulated music learning. The results were covering three phases of self-regulation during practicing: 1) forethought/planning, 2) performance/self-control/self-awareness, and 3) reflection/evaluation.

Method

The sample consisted of 238 participants, 42% high school music students and 58% instrumental/vocal students of undergraduate music studies. They aged 14–25 years, 59% were female, and 41% were male. They played for an average of 10 years (M = 9.96; SD = 3.14), the following music instruments: piano, violin, viola, cello, double bass, flute, clarinet, saxophone, oboe, bassoon, trumpet, trombone, horn, accordion, organ, harpsichord, harp, guitar, drums and singing. Students' responses were gathered via questionnaires based on previous research and contained 12-item and 13-item Likert scales. Completion of the questionnaires was collected during the 2017/2018 school year within group lessons in schools and faculties.

Results

The assessment of practice efficiency indicates a high level of responsibility when playing with colleagues (M = 6.13; SD = 1.349). Students show strong agreement with the "*I target problematic areas whenever I practice*" statement (M = 5.67; SD = 1.289), which positively correlated with all other items related to efficiency except those with time management, as well as with all three phases of self-regulated learning. A moderate correlation was found between self-efficacy for self-regulated music learning items score and scores for all three phases of self-regulation (the highest with the evaluation phase, $r(560)$ n = 238 p < .001). Participants who have higher self-efficacy for self-regulation music learning scores also have higher self-regulating practising scores.

Conclusions

Correlation between self-efficacy for self-regulated music learning and all three phases of self-regulation implicates that improvement of one phase can have an impact on the changes in the other two. Exploring self-regulated learning in music gives us perspective on teaching music students how to become more effective and efficient during at-home practicing (Miksza & Tan, 2015). There is a need to extend the use of this methodology and motivate students to engage with SRL to improve their learning process.

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Keywords: practice behavior, instrument teaching methodology, self-efficacy, self-regulation, self-regulated music learning.

Thematic Session 10

TEACHER IN MUSIC EDUCATION

Important factors for the development of musically gifted students: A study of music school teachers in Serbia

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Background

Teachers in music schools commonly work with musically gifted students (Bogunović, 2006, 2007). However, there are not many tools nor guides to help teachers work with gifted students and unlock their full potential (Bogunović, 2010; Bogunović et al., 2011; Mirković Radoš, 2010).

Aims

The aim of this study was to investigate which factors music teachers identify as important in working with musically gifted students.

Method

Teachers from 2 music schools in Serbia (N = 101, M = 14.94, SD = 10.11 years of service) filled out a questionnaire during their working hours. The questionnaire consisted of five checkbox questions, three multiple choices, and one open-ended question. All participants were surveyed on their opinions and experience working with gifted students, while 69.3% reported having experience working with gifted students. Both individual class teachers (N = 79) and group class teachers (N = 22) participated.

Results

Descriptive statistics show that music teachers believe the most important support measures in working with musically gifted students are teacher-parent collaboration (79%), additional classes (74.3%), and creating a stimulating school atmosphere (64%).

Stability and serenity (91.1%), stable and harmonious family relations (86.1%) and cooperation with the teacher (81.2%) are recognized as the most important factors regarding the gifted students' parents. Work dedication (99%), expertise (95.1%), the ability to transfer knowledge (94.1%) and a personalized approach (90.1%) are identified as the most important factors regarding the teachers' role in the success of the gifted student. A gifted student's most important personality traits are pitch, musicality, work habits, responsibility and discipline, stability, intelligence, good organization, strong motivation, independence, and originality. More than 90% of teachers mentioned each of these traits.

Group differences were analzyed with independent sample t-tests and chi-square tests. Group class teachers factor in ambition and independence significantly more than individual class teachers. They tend to believe more often that particular methods are necessary when working with gifted children. Group class teachers also pay more significance to factors such

as parent-teacher cooperation, stable and harmonious family relations, and a personalized approach to gifted children.

Conclusions

Although, in practice, music teachers of individual and group classes seem to commonly misalign in their attitudes towards working with gifted children, this study has shown that they mostly agree on the important factors that can lead a gifted child to become a successful musician. The generalization of these results should be limited to music teachers who teach in Serbian music schools.

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Keywords: music teachers, musically gifted students, musicality, success factors.

Factors that may correlate with the educational effects of the inclusion of students with special needs in musical schools

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Background

Inclusion of students with special needs into musical schools is a challenging enterprise (e.g., Abramo, 2015). To implement it adequately, it is important to examine factors that may correlate with the educational effects of this inclusion.

Aims

This study searched for factors that might correlate with the educational effects of the inclusion of students with special needs in musical schools.

Method

By applying a secondary analysis of data from the study of Rokvić et al., (2019), the study used a sample of fourteen students with special needs who came from four music schools in Serbia. Six variables were considered. Four variables contained data provided by students' parents: *Motivation* (motivation of his/her child to attend music school), *Support* (support that parent has provided to his/her child), *Education* (the highest education level completed by parent), and *Participation* (parent's participation in the special school team for inclusion). Two variables contained data provided by students: *Climate* (school working climate perceived by student) and *Achievement* (student's achievement perceived by himself/herself). Relationships among these six variables were examined by using a correlative analysis. This analysis calculated Spearman's correlation coefficients and determined their significance.

Results

There were three statistically significant correlations: between Climate and Motivation (r_s = .685, df = 12, p <.01), between Climate and Achievement (r_s = .682, df = 12, p < .01), and between Education and Participation (r_s = .540, df = 12, p < .05). Although Participation was not related to Support (r_s = .434, df = 12, p > .121), a partial correlation between Participation and Support controlling for Education was .515 (df = 11, p = .071, p < .05 – one tailed).

Conclusions

The school climate may be positively related to student motivation and achievement. Education of parents may positively contribute to their participation in the special school teams for inclusion, and this participation could be positively related to the support parents provide for their children (Đević & Gutvajn, 2018; Friedman et al, 2015; Merezman, 2014). Hence, fostering a positive school climate and encouraging parents to actively participate in the work of these teams might be critical factors for the successful inclusion of students with special needs into musical schools.

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Keywords: inclusion, musical schools, school climate, school team for inclusion, special needs.

Musical identity of Slovenian music school (primary level) teachers

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Background

Musical identity formation is influenced by many psychological, social and cultural aspects of an individual's engagement with music. The psychological construct of musical self-concept (Spychiger et al., 2009) hypothetically transforms musical experiences into musical identity. With a two-way distinction of musical identity (MacDonald et al., 2002), we can further explore music role diversity (identity in music: IIM) and the contribution of musical self-concept/identity to personal identity (music in identity: MII). As musical identity determines professional attitudes and performance, musical identity studies contribute to the understanding of the complex role of the instrument/singing teacher.

Aims

The present study focuses on social, musical, personal, and educational factors in structuring a teacher's musical identity. We were also interested in the contribution of MII and the manifestation of musical roles (IIM) in the identity of the instrument/singing teacher.

Method

Quantitative descriptive analysis was used to verify the data obtained from the online survey. The survey was carried out among 75 male and 165 female in-service instrument/singing teachers who have been teaching in Slovenian music schools (primary level) for an average of 17.2 years. The questionnaire included the Musical Identity Scale: MIS (Gruhn et al., 2017) with 40 items rated on a 6-point Likert-type scale. We also included questions about IIM and MII and questions about the epidemiological influences on music teaching and learning.

Results

The reliability and consistency of the identity concepts in the questionnaire were checked using the Cronbach test ($\alpha = 0.850$).

- The most pronounced factor in the musical identity of teachers is the educational factor with emphasis on technical knowledge and mastery of methods for teaching singing/instrument.
- Canonical correlation analysis (CCA) shows the connectivity of musical identity with the different musical roles of the instrument/singing teacher. The strongest correlation is found between musical identity and music performer (.764), conductor (.649) and music author (.574).
- MII was expressed with the highest mean values ($M = 4.35$, $SD = 0.815$) among the other personal identities.

Conclusions

The results show the predominance of academic factors and confirm the importance of the role of the performer in the musical identity of the instrument/singing teacher. They also offer a high expression of MII in the concept of holistic identity.

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Keywords: teacher of instrument/singing, Slovenian music school, MIS: Music Identity Scale, music identity.

"You can't always get what you want" – an exploration of gifted students' perspective on expected and performed roles of their main music teachers

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Background

Musically gifted students tend to have close relationships with their main music teacher (MMT; Creech, 2006, as cited in Creech, 2009). Shaped by the characteristics and behaviors of both parties (Creech, 2009) and individualized instructional practices in music education (Blackwell, 2018, as cited in Blackwell et al., 2020), a rapport with an extremely gifted music student might require the MMT to take on peculiar roles.

Aims

We aimed to find out what roles extremely musically gifted students expect from their MMTs to perform, and which of these they see as being actually fulfilled.

Method

As part of a broader study with four internationally recognized classical musicians who radically (for three or more years; Altaras Dimitrijević & Tatić Janevski, 2016) accelerated their music education (purposive sample; age range 32-45; 2 males; 2 violinists, 1 cellist, and 1 pianist), we conducted in-depth online interviews on the participants' experience of acceleration, using a life story research methodology (Leung, 2010). Qualitative content analysis, and hybrid approach to excerpts relating to MMTs, yielded two main categories: the type of MMT's roles (178 coded segments [CS]) and the status of their realization (i.e., whether the role is expected from or indeed performed by the MMT; 163 CS).

Results

Participants' narratives mentioned six different MMT roles which coincide with those identified by Ivić et al. (2001). Specifically, participants indicated that a MMT may act as instructor (42 CS), motivator (50 CS), evaluator (7 CS), cognitive-diagnostician (10 CS), social relations coordinator (44 CS), and partner in affective interaction (25 CS). The MMTs were perceived as having enacted the following roles: they had motivated their students through their own qualities, i.e., by being role models (43 CS); they had coordinated social relations primarily by promoting the student (i.e., providing opportunities to perform, introducing him/her to the gate-keepers in the field, providing access to necessary resources), by mediating the music education system's requirements, rules and values, choosing to teach the specific student, and being figures of authority (39 CS); by reinforcing practicing habits, and being experts in the

domain, they enacted the roles of instructor (26 CS), as well as partners in affective interaction based on a deep and supportive relationship with the student (15 CS). Simultaneously, participants wished that their MMTs had also done (more of) the following: guided their students in developing their artistic expression, encouraged creativity/originality and self-regulation (instructor; 15 CS); cared for them, provided emotional support and a safe ground in situations of uncertainty, encouraged contemplation, questioning and discovering of oneself (partners in affective interaction; 11 CS).

Conclusions

Although our findings indicate that some of the MMT's roles manifest differently than those of the teachers in general education, or encompass additional behaviors, they speak in favor of the existence of universal teacher roles. That is, in general as well as in the education of extremely musically gifted, the teacher has to coordinate different kinds of social relations, to arouse and nurture interest for the subject that he/she teaches, to be receptive to students' characteristic and needs, and guided by this knowledge when planning and enacting the teaching process, and to evaluate students.

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Keywords: teacher's roles, main music teacher, musically gifted, radical acceleration.

Thematic Session 11

MUSIC, HEALTH, AND WELL-BEING

Differences in the psychophysical status of Polish students of music, art, and ballet schools

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Background

Artistic education is associated with numerous overloads of a physical and mental nature. Art school students are required to have a higher level of diligence, mobilization and motivation to cope with the requirements resulting from the specificity of education, as well as increased resistance to stress related to public performances (Bissinger-Ćwierz & Nogaj, 2018). However, art school students are not free from experiencing civilization overloads related to social changes in the contemporary world. The research conducted so far in Poland on the psychological profile of art school students was carried out in general terms in the second half of the 20th century (Sękowski, 1989).

Aims

The study aimed to diagnose the psychophysical status of artistic school students and identify differences in the psychological functioning of music, visual art and ballet school students. Knowing the differences between students of different types of art schools will allow more appropriate support measures for students.

Method

Parallel studies were performed on students of art schools (n = 5.529; age from 13 to 19 years; girls 79%) and parents (n = 2.210). A questionnaire was created for the purpose of the research (20 questions). Questionnaires (both) for students and parents covered the following aspects: the level of satisfaction with relationships with peers (2 questions), the scope of experiencing difficult situations (2), assessment of mental resistance to stress related to public appearances (3), assessment of the occurrence of symptoms of depression (2), risk and frequency of self-harm and suicidal ideation (4). The Statistica 13.1 software was used for statistical analyzes.

Results

Among the most important research results, it should be mentioned that the assessments of students and their parents regarding the psychophysical condition of children differ significantly (χ^2 = 287.15, df = 3, p = .001). Students reported depressed mood (52%) much more often than their parents realized (30%) their children's depressed mood. Students of visual art experienced a larger number of emotional difficulties in most variables compared to students of music and ballet (χ^2 = 165.20, df = 6, p = .001). Unfortunately, students and parents do not see the support of the teachers and specialists at a satisfactory level.

Conclusions

Due to the fact that the research was exploratory and was carried out as part of the pedagogical supervision unit of art schools in Poland, they allowed for the development of recommendations for teachers on how to act in emergency situations and how to provide support expected by students, taking into account the specific needs of students of music, art and ballet schools. In the scientific dimension, research has shown the importance of an in-depth diagnosis of the psychophysical characteristics of students, especially in the paradigm of individual differences.

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Keywords: artistic education, psychophysical condition, psychological differences.

Elicitation of imagery in Guided Imagery and music therapy

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Background

This study explores the capacity of western classical music to elicit visual imagery in three-part narrative form during Guided Imagery and Music (GIM) sessions. In GIM, listeners experience visual imagery that appears to be evoked by music and has a narrative structure related to music's temporal structure (Bonny, 1995). To convey emotional expression and understanding, music needs to construct some sort of non-musical meaningful content that listeners can empathize with (Newcomb, 1992; Robinson and Hatten, 2012). This non-musical content develops and changes through time, creating a dramatic narrative structure.

Aim

This study had three aims; to investigate if passive (protagonist observes) and active (protagonists acts) imagery evoked by GIM's 'Nurturing' programme (7 pieces) appeared in a narrative form (passive-active-passive), to examine if the passive and active imagery each corresponded to a particular rate of change of imagery (fast or slow) and to explore which music features elicited which type of imagery.

Method

Twenty three client sessions with 23 different clients were recorded and transcribed. The clients were healthy adults aged 20 to 89. The first author conducted the GIM sessions. Three coders categorised the reported imagery from the sessions as passive or active. Additionally, the transcription was divided into coherent segments of 10sec, and an average number of images in each segment was calculated to estimate the rate of change in imagery. To investigate the relationship between imagery and musical structure, structural (event density, harmonic rhythm, interval size) and expressive (1st derivative of dynamics, pulse clarity) features were extracted from each piece using MIRToolBox, creating a multiple regression model which served to evaluate which musical elements affected the elicitation of which types of imagery the most.

Results

Results show that five of the seven pieces evoked both active and passive imagery for most listeners in a three-part narrative form. A faster rate of change of images corresponded to passive imagery; a slower rate of change corresponded to active imagery. In instrumental pieces, the significant predictors of passive imagery were event density (negative correlation), interval size (negative), and 1st derivative of dynamics (positive) and of active imagery event density (positive), interval size (positive) and 1st derivative of dynamics (negative).

Conclusions

In conclusion, we can see that the structural features affected the content of the imagery by either engaging the client emotionally and cognitively with high event density and large interval size (active imagery) or not (passive imagery). The expressive features affected the rate of change of imagery by either sustaining a particular image for a longer time with gradual change of dynamics (active imagery) or by shifting the clients' attention rapidly from one object to another with the rapid change of dynamics (passive imagery). Results imply that music offers a 'container' (Lawes, 2017) to the imagery, regulating to some extent the types of imagery emerging. The implications for GIM practice are numerous: this study is one of the rare evaluating the means of imagery elicitation quantitatively, thus giving the GIM method a much-needed empirical background.

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Keywords: Guided Imagery and Music, music and narrative, music and emotion.

Music therapy in patients with hypertension: 18-year experience

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Background

The effect of music on blood pressure has been a favorite theme throughout history (Vincent & Thompson, 1929). Music can be used as medication in patients with heart disease or hypertension. The way that music can help in the treatment of these patients can be by improving endothelial function (Koelsch & Lutz, 2015).

Aim

The aim of this study was to evaluate the music therapy treatment on the reduction of blood pressure in patients with hypertension (HT).

Method

All 580 patients (pts) with HT between 2002 and 2021 were divided into two groups: a group with music therapy (MT Group) – 242 pts and a control group of 338 pts, without music therapy – non-MT Group. MT Group received sedative music with the absence of strong rhythm, with a rate of 60-80 beats/minute, and instrumental music with sustained melody (Mitrović et al, 2018; White, 1999). The protocol for listening to music was to sit on the chair, using soft open-air headphones (allowed outside sounds) and a CD player and with closed eyes. They listen to selected music for 30 minutes twice a-daily (Mitrović et al, 2018; White, 1999). The music was selected for each patient, separately. The music genre was defined by patient interview (Mitrović et al, 2018; White, 1999). Baseline data collected included age, traditional coronary risk factors (RF), number of RF, previous organ damage, cardiovascular disease, chronic kidney diseases, and the number of Grades > 2 HT episodes/pts in last 6 months. Endothelial function was estimated by measurement of circulating blood markers (nitric-oxide (NOx), dimethylarginine (ADMA), symmetric dimethylarginine (SDMA) and xanthine-oxidase (XO). The follow-up period was six months. Standard statistical analysis was used for data analysis.

Results

There were no differences between the two groups in all baseline data. In the 6-month follow-up period, there were statistically important differences between the two groups in the number of Grades ≧ 2 HT episodes/pts ($p = 0.041$), in all six months of the follow-up period. This decrease was highest in the first month of the follow-up period. After 6-month NOx ($p = 0.004$), ADMA ($p = 0.049$) and SDMA ($p = 0.045$) increased in MT Group statistically important than in non-MT Group. The value of XO was significantly lower in MT Group ($p = 0.040$) than in non-MT Group.

Conclusions

In pts with HT listening to favorite music together with standard medical therapy, improves endothelial function, expressed through a higher increased of NOx, decreased of ADMA, SDMA, and XO than standard medical therapy alone. This improvement in endothelial function is associated with significant improvement in the reduction of blood pressure.

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Keywords: experience, hypertension, receptive music intervention, prognosis, outcome.

Out of the box: Relaxation and music protocol in oncology patients

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Background

A cancer diagnosis leaves substantial consequences on the person's physical and mental health (Tsimopoulou et al., 2015). Exhausting conventional medical cancer care procedures affect a person's overall biopsychosocial structure (Hasanpour-Dehkordi et al., 2015). Supportive-complementary interventions for coping with diagnosing and treating malignant diseases during the perioperative period positively impact emotional and psychological distress (Jacobsen & Jim, 2008; Tsimopoulou et al., 2015). The need for this type of approach was demonstrated in University Hospital for Tumors, Sestre milosrdnice University Hospital Centre in Zagreb, during the preoperative period and radiotherapy treatment using relaxation techniques, deep breathing exercises, guided imagery and music. Research has shown that applying this type of strategy in the perioperative period can positively impact the postoperative period in cancer patients (Tsimopoulou et al., 2015).

Aims

Implementing a pilot program during a perioperative period that facilitates hospitalization due to cancer removal surgery or radiotherapy treatment using complementary techniques in psychosocial oncology: relaxation techniques, deep breathing exercises, guided imagery, and music.

Method

Applying the techniques mentioned above started at University Hospital for Tumors in Zagreb (Center for Arts and Medicine) in 2019. Hospitalized patients attended the program for eight months at three clinical departments: the Department of Oncoplastic Surgery, the Department of Surgical Oncology, and the Department of Oncological Radiotherapy. A single session lasted from 45 to 60 minutes in a group setting of 5-9 patients once a week. Hospitalized patients in surgical departments participated only once in the preoperative period, while patients from the radiotherapy department participated in multiple sessions. Participants were asked to complete an evaluation questionnaire after the session (with possible answers on a scale of 1-5).

Results

The program included 315 hospitalized patients with 478 arrivals – 250 women and 65 men. 112 patients underwent abdominal surgical procedures, 98 underwent breast cancer surgery,

and 105 were treated with radiotherapy (268 arrivals). The minimum number of participants during the program's application was 2, and the maximum was 17, with an average of 9.5. Fortyseven participants filled out the questionnaire (15%). All 47 participants answered all four questions (100%), while 30 (63.83%) answered the final descriptive question.

Conclusions

The participants' impression of the conducted relaxation program was positive, with tendencies toward applying the adopted techniques even after hospitalization. The next step is assessing the acquired relaxation state and breathing capacity for the uneventful course of the postoperative period.

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Keywords: relaxation techniques, deep breathing exercises, guided imagery and music, cancer care, surgery, radiotherapy.

Thematic Session 12

EMOTION AND EXPRESSION IN MUSIC 2

Emotions and beliefs in music creation: An interpretative phenomenological analysis of four Portuguese jazz musicians

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Background
Several studies have investigated the emotional and cognitive experiences of music performers. Positive peak experiences, such as flow, seem to be important for musicians' emotional well-being and have been described as playing a determinant role in the decision to pursue music as a career (Fritz & Avsec, 2007). Conversely, it has been reported that traumatic events related to musical participation may generate feelings of humiliation and anxiety and prevent further musical engagement (Sloboda, 1990). Additionally, it has been shown that musicians' beliefs about themselves and musical practice are partially the result of their emotional experience while playing music (Austin et al., 2006). In the area of musical creativity, Hill (2018) conducted a landmark qualitative study with jazz, folk, and classical musicians from Cape Town, Helsinki, and Los Angeles, where she explored musicians' experiences of music creation. However, Hill remarks that more research is necessary with participants from other socio-cultural environments.

Aims
The aim of this study was to explore Portuguese jazz musicians' emotional and cognitive experiences of music creation.

Method
The methodology used was Interpretative phenomenological analysis (IPA), an idiographic qualitative approach with roots in phenomenology and hermeneutics (Smith et al., 2009). The participants were four Portuguese jazz musicians who studied in Porto, two females and two males. Four online semi-structured interviews were conducted, transcribed and analyzed according to IPA's approach to data analysis.

Results
Analysis established three main themes. The first theme explores the positive emotional states and beliefs that help participants create music, including achieving states of flow and transcendence. The second theme describes the negative emotions and beliefs that obstruct creativity flow, such as the pressure to conform to external standards. Finally, the third theme characterizes how participants have been able to cope with, and even overcome, inner obstacles to music creation, namely being in the moment and working with other people.

Conclusions

This study evidences the importance of emotional states and beliefs in music creation. Three participants expressed how music creation is a way for them to enter states of flow. Also, participants' testimonies illustrate how having to conform to external standards, particularly in music school, may help create significant creative blocks.

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Keywords: emotions, beliefs, musical creativity, jazz, IPA.

Future directions in exploring perception of the emotional content of the extreme music

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Background

The study of musical perception and recognition of the music emotional content by listeners is the main subject of music psychology. The aspect of experimental research is no less important for more global generalizations in the field of musical and psychological anthropology (Toropova, 2020), related to the emergence and functional significance of various musical styles in social practice. One of the least researched areas of modern musical reality is extreme music. The existing review of research makes it possible to identify the features and contradictions of the data to put forward hypotheses for planning an empirical study of extreme music emotional perception content problems by different groups of listeners. To plan an empirical study of the recognition of the emotional content of extreme music, an analysis of the scientific literature was carried out according to the criterion of reflecting the required information in the article's content. The analysis was based on 30 scientific articles. The papers were obtained by online search using scientific bases (Google Scholar, Scopus.com), and journals in the field of psychology of music.

Aims

This theoretical review aims to analyze the existing body of empirical data on various facets of extreme music perception to map the possible paths for future empirical studies on its emotional content.

Main contribution

In scientific literature, extreme music is sometimes referred to as masculine and contains many asocial or taboo themes (Fischer & Greitemeyer, 2006; Thompson et al., 2019). Empirical data suggests that extreme music does not reduce stress or improve mood but does increase tension and anger (Sharman & Dingle, 2015). Thus, the functional purpose of this style is the emotional "warming up" of aggressive impulses and not the suppression of the reaction to stress (Lozon & Bensimon, 2014). However, if the researchers introduced a group of trained listeners (fans) of extreme music, the results turned out to be the opposite (Ollivier et al., 2019). Of scientific interest is the problem of scales of affective and semantic evaluation of extreme music. Genres of extreme music are associated with negative affect and excitement, which is not explained solely by the presence of lyrics that are full of negatively semantic (Dillman Carpentier & Potter, 2007; Kneer et al., 2016; Merz et al., 2020). When evaluating extreme music, the characteristic scales of aggression and anger are revealed. Like regular listeners, representatives of the extreme music subculture not only evaluate it as aggressive and angry but also associate it with relaxation, which is not the case for unprepared listeners (Sun et al., 2019).

Implications

Based on analyzed studies, it can be assumed that a full-fledged reconstruction of the emotional content perception of extreme music can only be obtained by studying and comparing ordinary (unprepared for perception) listeners and fans of the genre, also to find out which functions extreme music has for its fans, what motives and needs they meet by listening to such music. At the same time, there is an evaluation problem of extreme music perception, which appears in the specifics of the current scales and their features compared with the scales in the study of classical perception music.

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Keywords: music perception, emotional content of music, music psychology, extreme music, musical and psychological anthropology.

Notes of the nature of 'musical affects': A psychoanalytic inquiry

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Background

Music evokes a significant emotional response from both listeners and performers. The psychoanalytic theory considers those responses as an experience of powerful affects, which may contribute to understanding their dynamics, significance, and nature in general (Feder et al., 1993).

Aims

The model of creative regression will be used in the attempt to answer several interconnected questions. Are the affects evoked by music, specifically musical? What attributes of music are responsible for arousing them? How can this model be conducive to the creativity of musicians, music pedagogy, and even the therapeutic effects of music?

Main contribution

When performing or listening to music, a significant part of psychic structures is engaged on the regressive stage, where the verbal and visual imagery are suspended or withdrawn into the background (Zatkalik & Kontić, 2015, 2017). The very structure of music is, in many respects isomorphous with primary-process mental imaging, enabling regressive division of "thing presentation" and "word presentation" in favor of the former (Zatkalik & Kontić, 2015). The structurally deepest and most archaic preverbal affects can thus be reactivated, providing the pleasure that could be obtained solely through contact with music (Zatkalik & Kontić, 2019). The dynamics of this process are discussed.

Implications

The model proposed above deepens and enriches the well-established view of the importance of music in human mental functioning. It advances our understanding of aesthetic pleasure provided by music. Further implications point to therapeutic effects of music, whereby the discharging of earliest preverbal affects – rather than keeping them in the strangulated state – provides benefits for mental equilibrium. In addition, surrendering to the depths of creative regression and evoking these affects can perhaps be utilized as a recommendation both in music pedagogy and the creative process itself.

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Keywords: music, affects, psychoanalysis, regression, creativity.

Adorno and Freud on interpretation: Traces of a structural homology

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Background

According to Adorno, a musical analysis should embrace a critical construction of sense from the text, mediating two mimetic elements – the musical gesture emerging in the score, and its reproduction in performance. In a distinct domain, Freud (1956/1912) theorized psychoanalytical technique as a set of operations aiming to infer latent content from the patient's secondary elaboration.

Aims

The current paper aims to highlight a structural homology between Adorno and Freud's theorizing of interpretation. Namely, it is shown that in both Freud and Adorno's theorizing of interpretation, an underdeterminate content (unconscious; musical gesture) is to be recovered (analysis; performance) from, and despite, a rationalized representation (secondary elaboration; musical score), as hinted at by Adorno (2006, p. 81).

Main contribution

Although the presence of Freudian thought in Adornian critical theory has been pointed out (Paddison, 1993), its incidence on the theory of performance has not been sufficiently explored (Martingo & Paiva, 2016). This paper shows that Adorno's understanding of analysis as a critical hermeneutics of the text mediating two expressive moments (compositional gesture and performance) may be thought to replicate Freudian understanding of psychoanalytic technique, characterized by free association and 'evenly hovering attention', and devoted to reveal the patient's resistances and thus identifying the unconscious contents.

Implications

By establishing a parallel between Freud's psychanalytical technique and Adorno's understanding of analysis, this paper is expected to broaden Adorno's scholarship, as well as, more generally, the presence of psychoanalytic elements in the making of critical theory. Additionally, the reflection offers an alternative perspective on interdisciplinary approaches to psychoanalysis and art – instead of the depiction of specific contents pertaining to given styles, genres, or periods, a structural homology between the two fields is offered.

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Keywords: Adorno, Freud, interpretation, music, psychoanalysis.

Thematic Session 13

MUSICIANS' HEALTH 2

Mental health and resilience in classical musicians during COVID-19 pandemic in North Macedonia

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Background

The COVID-19 pandemic, as a major public health threat, had a significant influence on the mental health and well-being of music professionals, including classical/orchestral musicians around the globe and as well in North Macedonia. The musician profession is very demanding, requiring possession of various skills and capacities besides musical ones to strive in the challenging musical scene, requiring a long period of intense training and practice to accomplish the skills and perform musically at a high level. The mental health challenges in classical/orchestral musicians have been described in many studies even before the COVID-19 pandemic spread. Some studies highlighted the high degree of occupational stress. In contrast, others display relatively high prevalence rates of mental health distress, both among classical/orchestral musicians (39%) and musical students (69%) during the COVID-19 pandemic (Kegelaers et al., 2021) compared to previous studies (before COVID-19) where the prevalence of mental health problems among this professional group was reported from 20% to 33% (Ackermann et al., 2014). This study aimed to explore the link between mental health (anxiety and stress) and resilience among classical/orchestral musicians during the COVID-19 pandemic and to investigate the predicting role of resilience on their mental health.

Methods

The study is cross-sectional, including 49 classical/ orchestral musicians and students in North Macedonia (63% male and 37% female), using a convenient snowball sample recruitment strategy by online data collection form in the period March-April 2022. Several self-reported measurements were used in the study. The Depression Anxiety Stress Scale (DASS) developed by Lovibond and Lovibond (1995) or DASS-21 short version was used for determining stress and anxiety. The resilience coping four items scale (BRCS - Brief Resilient Coping Scale) developed by Sinclair et al. (2004) was used in measuring how to cope with stress in a highly adaptive manner. The variable general resilience was measured by nine items scale taken from Connor et al. (2003) with questions related to the appraisal of dealing with stress, change, failure, and negative feelings.

Results

The study results show a statistically significant link between general resilience and anxiety and stress. The regression analysis shows that the increase in general resilience is a predictor

of lower anxiety (β = -.489, $p < .001$) and lower levels of stress (β = -.538, $p < .001$). Resilience coping was not found to be a significant predictor of mental health in the actual study.

Conclusions

The study findings will contribute to informing and suggesting tailored mental health interventions for classical/orchestral musicians and students that will significantly enhance their resilience and well-being. In delivering mental health interventions, it is important to consider musicians as a distinct group with unique well-being needs, challenges, and strengths. Some evidence-based interventions recognized include cognitive therapies, behavioral skills training, health education programs, and peer-to-peer support.

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Keywords: COVID-19, anxiety, depression, classical/orchestral musicians, resilience.

Health theories and self-concepts of pop music students within their (musical) socialization

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Background

Following Faltermaier (2016), people have subjective theories of health. These theories include personal beliefs and social factors. In terms of pop musicians' self-concepts, the glorification of an unhealthy lifestyle, narratives (e.g., 'sex and drugs and rock'n'roll') and toxic stereotypes (e.g., 'the tortured genius') that may be associated with it can be seen as health risk factors (Ptatscheck, 2020, 2021). Despite a trend toward the destigmatization of mental health issues and the institutionalization of health promotion (e.g., Help Musicians UK, MusiCares, Backline, MiM-Association), higher pop music education is still lacking differentiated observations and studies when it comes to the subject of (mental) health (Dannhauer, 2020).

Aims

The research aims to fill this gap in the literature by undertaking a study on the mental health of pop music students during their (musical) socialization. The study follows a participant-oriented approach to reconstructing their health theories and self-concepts. The paper elaborates on (1) their self-concepts of being/becoming a (professional) musician and related narratives, (2) the everyday challenges and burdens the students were/are facing during their (musical) socialization and education, and (3) the students' individual health resources. The study addresses how far academic training is/should be aligned with the individual needs of students and the challenges of their prospective job market.

Method

The study is based on a qualitative research design. Narrative-biographical interviews were conducted with 20 first-year students of Popakademie Baden-Württemberg (BA Pop Music Design) within the winter semester of 2021/2022. This form of data collection enables self-statements that provide access to the interviewees' individual experiences and life worlds. Data analysis and evaluation follow the paradigms of interpretative social research using biographical case reconstruction according to Rosenthal (2018), which combines narrative analysis with objective hermeneutics and gestalt theory.

Results

The results show that the idea of (mental) health or illness is not only subjectively produced, but also shaped by social processes and narratives of popular culture. In addition to family members, friends, and teachers at music education institutions, celebrity role models provide norms and values that are decisive for the students' (musical) self-concepts and related (toxic) health behavior. Based on their self-concepts and the associated value the students place on their own

state of health, they begin their studies with different health resources and action competencies. These influence how they deal with potential challenges and stressors during their studies, which in turn affects their (mental) health and wellbeing.

Conclusions

Pop music students need to be recognized within their self-concepts to derive specific indicators for required action and specific (teaching) offers. Besides the practical education and the transfer of knowledge, the educational institution provides norms and values that are decisive for the self-concepts of students in the phase of identity formation during their early studies and will be significant regarding the development of a healthy lifestyle as workers in the music business.

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Keywords: pop music students, subjective health theories, self-concepts, higher education, narratives.

Depression, anxiety, and stress among music students in Serbia

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Background

Previous research reported higher levels of depression and anxiety for music students (Wristen, 2013). Psychological distress was more prevalent among musicians than in the workforce, with soloists reporting the highest levels (Vaag et al., 2016). Studies are slim on the symptoms of depression, anxiety, and stress, related to playing specific instruments. One paper claims that piano playing reduces stress more than a few other artistic activities (Toyoshima et al., 2011).

Aims

This work aimed to compare certain groups based on their depression, anxiety, and stress levels. The differences were analyzed between (1) music and other faculties' students; (2) theoretically and practically oriented musicians; (3) piano, strings, and wind instruments players selected from the practitioners' group.

Method

The initial sample consisted of 364 students (81.3% female) aged 18-30, of which 120 were studying music. 68.3% of them were instrumentalists, and some were selected for between-group analysis: 29 piano, 18 string, and 15 wind instruments (including solo singers) players. The DASS-SER (Likert, 1-4) scale was used for depression, anxiety, and stress measures. One-way ANOVA was used, with Bonferroni post-hoc test.

Results

The levels of depression ($M = 1.76$, $SD = .74$), anxiety ($M = 1.77$, $SD = .68$), and stress ($M = 2.29$, $SD = .69$) among musicians were clinically insignificant. Although music students had slightly higher scores, no differences from other students were found. Analysis showed that practitioners experienced lower amounts of anxiety ($F(1) = 5.18$, $p = .025$) and depression ($F(1) = 4.09$, $p = .045$) than theorists. Significant differences between three groups of instrumentalists were found for each depression ($F(2) = 6.59$, $p = .003$), anxiety ($F(2) = 4.24$, $p = .019$), and stress ($F(2) = 6.69$, $p = .002$). Post-hoc test showed that string-players score higher on depression ($p = .003$), anxiety ($p = .017$), and stress ($p = .003$) than pianists, and higher on depression ($p = .030$) than wind instrumentalists.

Conclusions

Following previous research, this study suggests that music students experience no more depression, anxiety, or stress than other faculties' students. The result that theoretically oriented musicians seem more anxious and depressed than instrumentalists has no theoretical support so far. Underpinned by existing theory to some extent, piano players have slightly better scores

on these variables. Nevertheless, this study has not accounted for situational variables, such as the pandemic and rapports with professors. Since there are no well-founded theoretical assumptions, these variables probably explain the results. Therefore, the peculiarities of piano players' more positive scores, more melancholic tendencies of string instrumentalists and difficulties experienced by theoretically oriented musicians need further exploration and a larger sample.

Acknowledgements: This work was a part of the broader study about differentiation of self among students in Serbia (Project no. 451-03-9/2021-14/200163, Ministry of Education, Science and Technological Development). The data was collected with the great help of Prof. Dr Blanka Bogunović and Teaching Assistant Dejana Mutavdžin, Faculty of Music, University of Arts in Belgrade.

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Keywords: music students, depression, anxiety, stress, music instruments.

The burnout syndrome among music students and professional musicians in Croatia*

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Background

According to the World Health Organization (2019), burnout is a syndrome conceptualized as resulting from chronic workplace stress that has not been successfully managed. It is merely recognized as any overworking, including student workload. Job-related stress and burnout have been acknowledged as a problem and heavily researched in various fields. Although burnout has been assessed in both professional musicians and music students separately (e.g., Middlestadt & Fishbein, 1988; Bernhard, 2010), little is known about the differences in perceived job-related stress between these two categories of musicians.

Aims

The study aims to measure and assess the general prevalence of burnout complaints in professional musicians and higher education music students in Croatia, to examine the differences between these two groups, as well as the impact of other contributing factors (such as gender, age, professional experience, other professional activities) to the perceived level of burnout.

Method

The sample consisted of 293 participants: 187 (n = 117 male, n = 70 female) formally trained professional musicians from several professional associations, aged mostly 36-50 years (49.2 %), and 106 (n = 29 male, n = 77 female) music students from the universities of Zagreb, Split, Osijek and Pula, mostly between 23 and 24 years old (38.7 %). The study was administered online using the Burnout Assessment Tool (BAT; Schaufeli et al., 2020), which measures burnout complaints. The BAT consists of four core subscales (Exhaustion, Mental Distance, Cognitive Impairment, and Emotional Impairment), and a two-subscale secondary symptoms scale (Psychological Distress and Psychosomatic Complaints) are added together and interpreted as a whole. Scoring was assessed via a frequency-based 5-point Likert scale. This study provides information about the overall level of burnout, the mean scores of subscale values, and the particular subscale items.

Results

The prevalence of burnout complaints in both groups was low to moderate. The difference in the overall levels was comparatively mild (M = 2.30, SD = .70 students, M = 1.93, SD = .57 pro-

* The contribution is based on the MA thesis in Music Pedagogy by Lea Konjetić, defended at the Academy of Music, University of Zagreb, on January 31, 2022 (supervisor: Sanja Kiš Žuvela).

fessionals) but significant ($t(184) = 4.63$, $p < .001$, $d = .58$). The assessed students' burnout levels were generally higher in all subscales, particularly in Cognitive Impairment ($M = 2.24$ students $> M = 1.70$ professionals). The analysis of subscale items showed that students have a harder time getting up in the morning, feel more mentally drained, have more trouble concentrating, tend to worry and feel tense more often, and are significantly more prone to anxiety, panic attacks and feeling inexplicably sad. Working professionals more often complain that everything they do requires a great deal of effort. Male professionals had lower levels of burnout than male students but were slightly more prone to burnout than female professionals, while female students had the highest overall levels of burnout.

Conclusions

The study shows that the majority of formally educated musicians do not have excessive levels of burnout symptoms. Still, it also indicates that music students are generally more at risk of burning out. However, this may be due to the potential fact that students often tend to be more stressed compared to the general population, which may represent an avenue for further research. Music educators must consider this risk and help young musicians cope with stress effectively.

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Keywords: burnout, exhaustion, music professionals, music students, stress.

Thematic Session 14

EMBODIED COMMUNICATION IN MUSIC PERFORMANCE

Links between embodiment and perceived brightness in orchestral music

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Background

For centuries, composers of Western orchestral music have created crossmodal depictions of light (Touizrar, 2021). We might be tempted to explain the phenomenon as a species of auditory synaesthesia (Cytowic, 2002). However, advances in motion-capture technology allow for greater insight into the ways that the embodied experience of listening to music manifests as motion, which is both felt and expressed. The embodied framework has fueled studies examining relationships between musical structure and expressive bodily gestures during a performance (e.g., Thompson & Luck, 2012). These studies uncover latent relationships between movement and musical features computationally extracted from the audio signal.

Aims

Our paper presents the initial findings of an empirical study that aims to improve understanding of the links between embodiment and the sensation of luminosity in music. We ask if the embodied experience of musical contour – as expansion and contraction, growth and decline, brightening and darkening – can be observed when individuals move spontaneously to music.

Method

In a pilot study, five adult individuals (convenience sample; 3 females; median age = 33) were tasked to move expressively according to their perception of brightness to two musical excerpts – an orchestral piece by Maurice Ravel (*Daphnis et Chloé, Prelude to Part 3: Lever du jour*) depicting a sunrise, and a tonal orchestral piece by Arnold Schoenberg (*Gurre-Lieder, Pt. 1: Orchestervorspiel*) depicting a sunset. Reflective sensors were attached to the joints of each participant and their movements were recorded using an optical motion capture system. A movement feature representing bodily extension and contraction throughout the performance was calculated from the position data. This feature was correlated with acoustic features computationally extracted from the music's audio (Lartillot & Toiviainen, 2007). The acoustic features were selected for their presumed association to musical characteristics participants might attend to when hearing the pieces: root mean square (for perceived loudness); spectral centroid (for perceived brightness); spectral flux (for perceived timbral changes); and zero-cross (for perceived noisiness).

Results

We examined relationships between the extension and contraction movement feature (averaged across participants) and acoustic features using Pearson's correlation. As the time series were autocorrelated, significance testing was carried out by first calculating the effective degrees of freedom (Pyper & Peterman, 1998). Significant correlations were found in the Ravel piece, but not in the Schoenberg. The highest correlated feature was zero-cross ($r(30) = 0.73$, $p < .001$), followed by spectral centroid ($r(32) = 0.65$, $p < .001$), with root mean square ($r(28) = 0.49$, $p < .001$) and spectral flux ($r(28) = 0.49$, $p < .001$) yielding similar results. Individual differences between participants were investigated through qualitative observations of point-light motion capture animations. Preliminary observations revealed that some participants attend to specific musical motives while others to global musical parameters such as variation in the orchestral texture.

Conclusions

Preliminary evidence for embodied contours experienced in response to a musical stimulus can be inferred from the correlation between interpretive motion and acoustic features. The link between embodiment and luminosity in music experience has received little empirical attention and thus requires further research. Future directions include a focused study using professional dancers.

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Keywords: music and movement, embodied aesthetics, multimodality.

Body movements and organization of the time structure in Tchaikovsky's *Grand Sonata for Piano* performance

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Background

This research focuses on two main aspects of performance: body movements (Davidson, 2012) and time management. The first aspect is focused on the body movements vocabulary of different pianists. The second aspect is the crystallization of the piece's structure (Popović Mlađenović, 1989), which implies interventions in time shaping – shrinking and swelling of the music flow.

Aims

The main aim of the research is to point out the link between body movements and the structure of the musical piece. Also, we want to verify the thesis of the idiosyncrasy of the music performance in terms of movement. Parallelism of the body and time movement is also to be shown in this research using the qualitative empirical method.

Method

A sample of three different performances of the chosen parts of the Tchaikovsky *Grand Sonata* is going to be used. The comparative method based on Davidson's research will be the model using an already existing typology of body movements. Three filmed recordings of the performance – two pianists and the recording of the study's author – are the main material for the analysis. The performances will be observed through multiple viewings by the author and then compared. Also, the author will analyze the piece's musical structure and establish a link between the analysis and body movements in those three performances.

Results

Preliminary results indicate that body movements and musical structure are closely connected. Also, every pianist has their own body vocabulary and reveals his unique interpretation through it. Expression varies in three different performances in intensity levels. Time management (or crystallization of the structure) also depends on individual interpretation. It's the performer's task to recreate the piece again, and although the score determines the performance to a large extent, there are gaps in the score where idiosyncrasy comes to the fore.

Conclusions

Analysis has clear implications for performers and can contribute to a greater consciousness and rethinking interpretation through body movements and time management. It is very important that performers have self-awareness of their own movements and time structure organization, which will be explained through the author's analysis of her recording. There has to

be perfect consent between intention and body realization. Movements should be completely purposeful, and then the true intention of the interpreter can be revealed.

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Keywords: piano music, body movements, idiosyncrasy of musical performing, body vocabulary, crystallization, comparison.

Music students' attentional focus during performance: A thematic analysis

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Background

Increased performance anxiety under pressure can affect skilled performers' attentional focus: they would either be distracted by task-irrelevant cues or consciously monitor and thus interfere with automatized task execution (Mesagno & Beckmann, 2017). In previous research, focusing on music-related aspects and being in the present moment has been highlighted as adaptive, but music students' attentional focus has not yet been investigated directly after a specific performance.

Aims

We aimed to extend and deepen understanding of the 'what' and 'how' of musicians' attentional focus during a performance, and thereby helping advance musical training and propose relevant educational procedures.

Method

This study was a secondary qualitative analysis of a randomized-controlled study on the effect of interventions for performance under pressure on music students' performance and self-efficacy (Lubert & Gröpel, 2022). Forty-six music students performed excerpts under low- and high-pressure conditions. Immediately after performing, they described what they focused on and thought about during performance in an online open-format questionnaire. Responses were analyzed using data-driven thematic analysis within a constructionist framework.

Results

We found only minor differences between low- and high-pressure conditions and thus defined four themes independent of condition: musical aspects, embodied performance experience, thoughts and conscious control, and meta-level of focus. In the first theme, we identified two hierarchical levels: a basic level of formal and technical elements of music and a higher level of interpretation. Participants also indicated prioritizing between these two levels and giving one of them more attention than the other, which was perceived as impacting the quality of the level that was given less attention. The second theme describes feelings and physical sensations. The third theme includes general and evaluative thoughts, as well as attempts at controlling actions, bodily sensations, thoughts, and feelings. The fourth theme alludes to reflections on how par-

ticipants perceived their focus. This was related to a timeline, as they would either refer to the future by anticipating mistakes, to the past by ruminating about mistakes, or to how they stayed present. Changing focus was characterized by being distracted and attempting to manage one's focus. Overall, participants described some adaptive ways to manage their focus, but negative thoughts, feelings, and sensations were still dominating their responses. Staying in the present moment and enjoying the music was indicated to be a desirable attentional focus. Instead of suppressing negative thoughts, music students might thus benefit from learning to defuse their thoughts. We, therefore, recommend attentional focus training based on mindfulness, acceptance, and commitment.

Conclusions

We argue that musicians' attentional focus during a performance is far more multifaceted than previous research might suggest. Many responses indicated cognitive fusion and negative self-judgment, which could be addressed by training music students in mindfulness, acceptance, and commitment.

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Keywords: attentional focus, performance under pressure, music performance, thematic analysis, qualitative analysis.

Crossing the threshold: A performer's experience of *Re:Mains for Multi-Pianist*

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Background
Added to technical and other difficulties, undertaking a work's first performance is a great responsibility for a performer, especially in the composer's presence. Having faced the demands of deep involvement with Christina Athinodorou's highly challenging *Re:Mains* for Multi-pianist (2013–2015), the pianist Annini Tsioutis engages in a post-performance re-exploration of the piece and its two presentations, through an exchange of questions with the composer.

Aims
The paper seeks to transfer significant parameters of the experience of preparation, performance and re-visiting *Re:Mains*, an innovative work. This is achieved through the exploration of the role of the composer in helping the performer assume the 'task' of bringing a piece to life and equally, through the examination of the elements that contributed to the retuning of the performer's creative and music-evaluating sensors to discover new artistic meanings and to reconsider her function as a performer more generally.

Method
The paper is presented from the point of view of the performer while considering the composer's input. Through post-performance interviewing techniques, the composer and the pianist retrace the broader processes involved in conceiving, learning and delivering *Re:Mains*. The score analysis offers new empirical findings regarding the general stance towards the piece, its technical profile, and the artistic meanings through key moments. The dynamic of the relationship between composer and performer is then discussed, aiming to address the benefits of the experience of dealing with *Re:Mains*, for the performer, who evaluates how the work, which initially exceeded her horizon of experience, has now expanded her horizon of expectation (Pickering, 2004).

Results
The outcomes of this exchange have led to the definition of various useful tools for a further understanding contemporary music and creation. The process retraced by the pianist and the composer broadly involved: (1) the conception of the work by the composer; (2) the writing of the score; (3) the preparation of the work in a collaborative endeavor by the pianist and the composer; (4) performance by the pianist; and (5) exchange of feedback. Stages (2) and (3) touch upon the role of notation. In Stages (3), (4) and (5) psychological aspects of the processes involved are considered (Kramer, 2015). By extending and expanding various musical (aural,

gestural), and performative (gestural, scenic) parameters, initially through the score, and subsequently through their embodiment by the pianist, the work is seen as a threshold through which the pianistic experience is irrevocably transformed and enhanced (Fischer-Lichte, 2008).

Conclusions

Addressing these novel tools and notions provides the means towards acquiring an expanded vocabulary in piano writing and solo piano playing, which can potentially be applied to the analysis of other contemporary works. Studies focusing on the performer's point of view are scarce in the literature, thus they offer a precious starting point for the consideration and discussion of the creative process. With the composer's engagement in the post-performance evaluation process, the conclusions can be recognized as genuine, and they can provide the basis for a further exploration of the subject in future research-creation studies.

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Keywords: multi-pianist, toy piano, horizon of experience, composing for piano, piano performance.

Thematic Session 15

LISTENING AND PLAYING IN MUSIC EDUCATION

Review: The role of music in cognitive development

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Background

The amount of literature in the field of music cognition is rising (Hallam et al., 2016), and there are numerous studies that show both behavioral (e.g., Bilhartz et al., 1999; Patel, 2010) and neurocognitive (e.g., Altenmüller et al., 2000) results that emphasize the role of music in cognitive development. However, there has been little effort to conduct a comprehensive review on this topic.

Aims

The aim of this study is to provide a systematic review of the role music can have in cognitive development. The review was conducted by utilizing search results on Google Scholar for the period 1990–2022 with the keywords "music" and "cognitive development" included in the title. After removing results that did not match the review criteria, 30 studies were included.

Main contribution

This systematic review revealed only five studies where no effects of music on cognitive development were reported. The remaining 25 studies showed that music can provide a variety of cognitive benefits, including the development of spatial and motor skills (12), verbal skills (10), memory (4), executive functioning (5), problem-solving (5), and sensory skills (2). Seven studies concluded that music can improve cognitive development in general, while six studies reported that music can be beneficial in assisting with cognitive impairments. To current knowledge, there hasn't been a review covering such a wide scope of cognitive aspects regarding music.

Implications

The present review could potentially help researchers come to a more comprehensive understanding of the results in the field. So far, there have been many contradictory results and methodological misalignments. This review shows what methodologies have been used, what theoretical approaches these methodologies relied on, and what were their conclusions.

It should be noted that the design quality of studies in this field is negatively related to effect size (Sala & Gobet, 2017). The conclusions of this review could have potentially been skewed by the positive-result bias, which could explain why so few studies showed no effects.

The review, in its current state, is limited to studies that specifically explore cognitive development. Further work will include studies that mention "cognitive abilities" and "cognitive skills" in their titles. Insights from such a broad review could be used to potentially improve music practices in preschool education by enhancing the importance of music in cognitive development.

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Keywords: music, cognitive development, music cognition.

The effects of teaching paradigm and previous experiences with listening to classical music on the impression of music listening in solfège classes

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Background

Recently, a paradigm for introducing cognitive-emotional music listening (CEML) in solfège classes has been developed. In this paradigm, the multimodal and interdisciplinary approach to a music piece is used (Vidulin & Kazić, 2021). Generally, listening to music is influenced by several factors. For example, children that had more past experiences with emotional listening to classical music react more emotionally to such music (Woody, 2004). Similarly, liking of a particular music piece is predicted by familiarity with its musical style (Madison & Schiölde, 2017).

Aims

The aim of the study was to examine the factors that influenced the liking of the listened music piece in two types of solfège classes: the standard one (STD) and the one where CEML was implemented.

Method

Four hundred twenty-three third graders at music schools (60% female; M_{age} = 10.5, SD_{age} = .92) participated in the study. One group attended the STD (N = 216), and the other the CEML solfège class (N = 207). The CEML class was implemented for the first time. In both solfège classes, pupils learned about e minor scale and listened to the 4th movement of Dvořák's Symphony no. 9 "From the new world". In the STD class, the piece was listened only at the end of the teaching unit, after teaching about e minor was completed. In the CEML class, as an integral part of learning about e minor scale, the pupils were provided with more information about the piece. They analyzed the piece and discussed it with the teacher. At the end of both classes, the pupils listened to the piece. After listening, they fulfilled two scales constructed for this study: Short scale of music liking (2 items, α = .76) and Experiences with listening to classical music scale (12 items, α = .86).

Results

Hierarchical regression analysis showed that gender and age (1st step) were not significant predictors (R^2 = .004; F(2,357) = . 78, p = .46), while previous experiences with listening to classical music (2nd step) was a positive predictor (β = .49, p < .001) of liking the piece (R^2 = .24; F(3,356) = 38.39, p < .001; $R^2\Delta$ = .24; $F\Delta$ = 113.12, p < .001). The solfège class type (3rd step) additionally

contributed to the explanation of the variance of liking the piece (R^2 = .26; F(3,355) = 31.63, p < .001; $R^2\Delta$ = .0.2; $F\Delta$ = 8.81, p < .001) showing that pupils in the CEML class liked the music more than those in the STD class.

Conclusions

We confirmed that previous experiences with listening to classical music influenced liking of such music in the solfège classroom. However, broadening the listening context with CEML paradigm can be used to additionally increase music liking in music school and potentially influence the acquisition of longer-term knowledge.

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Keywords: listening to classical music, liking the music, cognitive-emotional music listening, solfège.

Teachers' free time habits and their attitudes towards listening to music in music classes

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Background

In the last twenty years, the work of prominent Croatian music pedagogues has emphasized the importance of listening to music and the need to raise this area as a center in music classes in all eight grades of primary school (Dobrota & Reić Ercegovac, 2016; Svalina & Sukop, 2021; Vidulin, 2021). The results of several recent studies in which Croatian primary school teachers participated showed that listening to music is important for teachers, but it is not the most important area in music classes, and it is not more important than singing (Svalina & Arambašić; 2021; Svalina & Sukop, 2021). Thus, primary school teachers do not implement listening to music as a central activity in music classes, as envisaged by the Primary School Curriculum (2006).

Aims

In order to find out how important listening to music as a teaching area is for the subject music teachers and what the relationship is between the habits of subject music teachers to engage in leisure music activities with their opinions on the importance and representation of music listening activities in music classes, we conducted an empirical study in which the participants were subject music teachers employed in Croatian primary schools. In the study, we used convenience sampling (Cohen et al., 2000) comprised of 132 teachers.

Method

We used the surveying process during the research. The questionnaire was developed for the purposes of this research by the author of this paper. Quantitative analysis was used for data processing. Based on the results obtained, the basic descriptive parameters: arithmetic mean (*M*), standard deviation (*SD*), and the percentage of answers obtained, were calculated. Using the non-parametric Mann-Whitney U test, we compared the differences in answers regarding the teachers' listening habits in their free time (Petz, 2007; Suzić, 2007).

Results

A sample of 132 respondents showed that music teachers spend most of their free time singing and listening to pop and classical music. According to music teachers, listening to music is necessary for music lessons, but it should be equal to other musical activities. Music teachers also believe students should listen to all kinds of music in class. The activity of listening to music is more important to those music teachers who often listen to classical music in their free time ($z = 2.082$; $p = .037$). It is important for music teachers who often listen to popular and traditional music in their free time to get to know all types of music, including classical, popular, and traditional music.

Conclusions

Given the results obtained, we can say that even for music teachers, listening to music is not the most important activity in music classes. In addition, there is a connection between the opinions of subject music teachers about the importance and need to introduce certain types of music in music classes and their habits of listening to music in their free time.

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Keywords: free time, listening to music, music classes, primary school, subject music teachers.

The influence of 20th century music on the emotions of students in the music education

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Background

Music is one of the most potent stimuli of emotions in humans (Gabrielsson, 1991). It is an essential part of young people's lives, as evidenced by the fact that they consume music to a large extent (North et al., 2000), but also that most strong music experiences occur in early adolescence. Several studies have suggested that the most common goal of musical experiences is to influence emotions (Juslin & Västfjäll, 2008). Empirical research has shown that children are more emotionally inclined to music with high excitement potential while listening to music (Holochwost & Izard, 2008). Despite their interest in listening to music, psychologists have not investigated the influence of contemporary classical music on the affective experience of young adolescents in the Circumplex Model of Affect domain, which means whether emotions induced by the music are pleasant or unpleasant or cause high/low activation (Russel, 1980). The classical music of the 20th century brings a new, different musical language. As the music education of primary school students is based on functional harmony and tonal material, the critical question is what kind of emotions the music of the twentieth century stimulates in students whose acoustic experience is based on the tonal system.

Aims

The research aims to determine what emotions arise in fifth-grade elementary school students when listening to contemporary music of the 20th century. Students were exposed to the influences of musical examples from neoclassicism as a representative of tonal music and expressionism and aleatoric as a representative of atonal 20th century music. Furthermore, we wanted to examine whether distinctly atonal music stimulates emotion of displeasure predominantly, that is, whether tonal music evokes emotions of pleasure, and to compare them with the circumplex model of affect. In addition, we determined whether there is a difference in emotional experience between boys and girls.

Method

The sample consists of 270 fifth-grade students from five primary schools in Sombor. In the 45-minute Music Education class, the researcher reproduced twelve different 20th century musical examples. Six musical examples were tonal, while the other six examples were atonal. Without information about the title and composer, the respondents had the task to assess their emotional reaction while listening to a musical example, and then record it on the questionnaire. According to the circumplex model of affect, student responses were sorted into high and low activation displeasure and high and low activation pleasure emotions, with a special cat-

egory used for when the answer couldn't be clearly categorized for any reason. The respondents who didn't provide answers to all twelve musical examples (21 of them) were excluded from the sample, thus ending up with the final sample of 249 fifth-graders, 46% boys and 53% girls, who provided a total of 2988 answers.

Results

The compositions of the tonal basis evoked different emotional reactions than those of the atonal basis ($\chi^2 = 836.979$, $df = 4$, $p < 0.001$, Cramer's V = 0.529, $p < 0.001$), with tonal compositions evoking mostly high-activation (51% of answers) and low activation pleasure (25% of answers) emotions, while atonal compositions evoked mostly high-activation displeasure emotions (46% of answers), and evoked high-activation and low-activation pleasure much less frequently (13% and 17% respectively). There was no difference between the number of answers that couldn't be categorized clearly (about 13% of answers in both cases). Boys and girls differed slightly when it comes to emotions evoked by tonal compositions ($\chi^2 = 36.674$, $df = 4$, $p < 0.001$, Cramer's V = 0.152, $p < 0.001$), with girls being more prone to low-activation pleasure emotions (28% vs 21%) and being less prone to high-intensity (4% vs 10%) and low-intensity (3% vs 6%) displeasure. There was no difference between the emotional reactions of boys and girls to atonal compositions.

Conclusions

This research confirmed the existence of different influences of tonal and atonal music on emotions and that tonal music stimulates pleasant emotions far more strongly than atonal music. Although atonal music stimulates emotions of displeasure, it offers outstanding potential for enriching students' spiritual and intellectual aspects.

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Keywords: emotions, music education, 20th century music, circumplex model of affect.

SYMPOSIUM

Creating a 'future' artist: A holistic perspective

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Background

Some contemporary researchers in the field of humanities conclude that people have lost the connection with our humanity, and that we need to get back 'on track' and in touch with our true human nature. In ancient times shamans and medicine-man have guided their immediate group through hardships and times of turmoil connecting the tribe with the past, present, and future (Elijade, 1990). As our society grows we realize ever more that, although digitally more connected, we all suffer from the same 'social diseases', psychological challenges, lack of empathy and 'alienation' (not solely in an economic sense).

Aims

In this presentation, I argue that artists are today's shamans and that, as educators and researchers in the field of arts, we need to explore the options and (re-)open the pathways for a greater understanding of the whole being on an interdisciplinary level. The holistic path (Miller, 2019), contrary to the popular belief, does not stray from the scientific way but encompasses it. We can see a very strong convergence of the two paths connecting not only the physical and intellectual parts of our selves, but indeed the emotional and spiritual parts into one conscious being (Bjerkvol, 2005).

Main contribution

From the Greek classics through Carl G. Jung, philosophers and psychologists, including systems of holistic healing, have devised schematics of four basic elements. In ancient philosophy, these were: earth, air, fire and water, or: hot, cold, moist and dry with corresponding soft and hard qualities. In psychological types of Carl Jung (1978), they are represented by feeling, thinking, intuition, and sensation (each with introverted or extroverted aspects). In Holistic systems, they represent parts of a single being – physical, intellectual, emotional, and spiritual. By drawing explicit parallels, I wish to draw attention to the questions: "Why is it that our society, hence our education system, only nurtures two sides of our being, the physical and the intellectual, and not the full package? Is it because they are intangible? How do we bring in emotional and spiritual education?

Implications

The implications of the research refer to the emotional side and perception of music, art and theatre and the tools to transform or translate our feelings and our worldview through the arts. The authors also refer to the spiritual connection to a piece of art, music and movement and not pertaining exclusively to the religious aspects. Yet, these universal themes seem to leave more questions within the fabric of our education and knowledge. The need to broaden the narrative

is apparent. How do we employ the available strategies and tools to create the 'future artists' or 'artists of the future'?

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Keywords: arts education, holistic education, the 'four elements'.

Music as an inspiration and choreographic cognition

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Background

When creating a certain dance piece, the choreographer faces many challenges, the biggest one being harmonizing the movements with the chosen music. In response to these challenges, cognition plays a major role. Some authors assume that, in these cases, the choreographer relies on a specific area of cognition called *choreographic cognition* (Stevens & Glass, 2005; Stevens & McKechnie, 2005). Choreographic cognition forms a special part of a wider area of human cognition – *embodied cognition* (Kirsh, 2011). Embodied cognition is a special type of data processing in which parts of the body or parts of the sensory system are used to simulate a certain process whereby the person understands it (Adams, 2010; Borghi & Cimatti, 2010; Kirsh, 2011).

On the other hand, choreographic cognition refers to the cognitive and mental processes involved in the construction and refinement of movement material to create a work of art. Furthermore, it implies that the choreographer and the performer use their bodies as a means of thinking, where the body has a dual role – it is used both as a medium of cognition and representation. Thus, choreographic cognition partially overlaps with embodied cognition. Dance is the domain where choreographic cognition reaches its complete application and expression. In that sense, creativity inherent in choreographic cognition is based on the research of movement, and the source of the idea for it can be found in various modalities such as music, image, space, rhythm, impact, texture, psychological tension, feeling, word, sound, and concept.

Aims

This paper aims to analyze and reflect upon the role of music as an inspiration for choreographers. Furthermore, the aim is to explore the relationship between music and choreographic cognition to increase the understanding of both.

Main contribution

Since dance and music are inseparable, choreographers often search for their inspiration in music. When they choose the appropriate piece of music, a serious venture of creating the choreography begins. The form of dance mostly defines the choice of music (e.g., classical ballet, contemporary dance, hip hop, or folk dances), so the choreographic cognition of choreographers is closely related to their musical preference. Thus, music is not an accompaniment of a particular dance but its inspiration. Moreover, the music itself carries meaning. The rhythm, melody and groove often carry a metaphor and suggest a certain feeling. Kirch (2011) explains that a choreographer or dancer use their bodies as a medium of thinking, relying on their visual, somato-sensory, tactile, and motor systems while creating new movements. Any change in the body as an instrument (flexion, extension, increase or decrease of rigidity, etc.) leads to a change in the form and style of dance. Furthermore, choreographer and dancer do not just

depict the music, but they amplify its meaning by interpreting it through their movements. In this paper, we also analyze and reflect upon how a music sequence could be intensified, accentuated, or diminished through the mastery of body movement.

Implications

On the basis of our analyses, some possibilities for future empirical and theoretical research are discussed. Namely, the current practice of dance shows a tendency to combine different forms of dance with a genre of music that is not usual for that particular dance form (e.g., hip-hop dance and classical pieces; flamenco dance and R'n'B music). When it comes to creating new dance movements, it is emphasized that the choreographer's creativity relies on choreographic cognition and the use of different sensory systems and the possibility of 'transition' between them (audio, visual, olfactory, tactile, kinesthetic). This can open up a fruitful field for empirical research regarding the aesthetic experience of both music and dance. Furthermore, the practical, theoretical and empirical exploration of this contemporary tendency to combine various genres of music with different dance forms does not just pose a challenge for choreographers in creating new directions of artistic expression, but can also increase our understanding of both choreographic and music cognition.

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Keywords: music, dance, choreographic cognition, embodied cognition.

The role of music in exploring the aesthetic experience of dance choreographies

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Background

The bond between music and dance is almost unbreakable. According to Irena Krešić (1997, p. 261), music and rhythm pose both a challenge and an inspiration when creating a certain dance piece. Music and dance should accompany each other to achieve mutual impact and unity. The most common way to perform a particular choreography is with music (Carrol & Moore, 2012; Christensen & Calvo-Merino, 2013), although there are cases, albeit very rare when dance is performed in silence (Hagendoorn, 2011). Hence, when it comes to exploring the role of music in creating a dance choreography, academic studies also adopt different approaches to this matter.

Aim

This paper aims to analyze and reflect on different academic studies that explore the role of music in the aesthetic experience of dance choreographies.

Main contribution

The main contribution of this paper is acknowledging different approaches to exploring the role of music in the aesthetic experience of a dance choreography (Vukadinović, 2019). Namely, three different types of studies investigate the aesthetic experience of dance performances. The first type excludes music, the second does not separate those two, and the third one uses 'experimental choreography', which represents a specially designed form of dance so that in experimental conditions, it enables the study of perception and aesthetic experience (Jola, 2010). Such practice arose because, while studying the aesthetic experience of dance, it was noticed that music could be a confusing factor. The cognitive system of the observer combines dance and music to produce a unique aesthetic experience (Christensen & Calvo-Merino, 2013). Since performing choreography with music is a complex visual, auditory, and motor stimulus for the observer, to study the aesthetic experience of dance, 'experimental choreography' was created as a solution. Furthermore, the ways of possible control of the 'music' as a confusing variable are discussed.

Implications

It has been concluded that it is crucial to explore dance inseparably from music if we are to understand the aesthetic experience of dance. Thus, the main implication of this paper is that modern practices in the exploration and understanding of the role of music in the aesthetic experience of dance should insist on observing dance in its natural context, i.e., with music, on stage and in front of the audience to preserve its originality and authenticity of the presentation,

and thus provide natural conditions for the appearance of an aesthetic experience of both the performer and the audience.

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Keywords: the role of music, dance choreography, aesthetic experience.

The contribution of narrative film music in experiencing ambivalent film endings

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Background

Applying the conceptual theory of metaphor (Lakoff & Johnson, 1980) to film music leads to the assumption that the meaning of music is established by the viewers perceiving the structural elements of music as concepts that are experientially closer and more tangible to them. By connecting them, the narrative meaning of music is formed, which can represent an abstract imprint of the story of the final film sequence or the film as a whole.

Aims

This paper aims to examine the metaphorical meaning of film score and its contribution to the formation of ideas and messages about films with ambivalent endings, as well as how aesthetic characteristics of music that are not congruent with the accompanying narratives characteristics can change certain aspects of those film experiences.

Method

Ending film sequences on one hand and music compositions that accompany them on the other, from films *500 Days of Summer* (Webb, 2009) and *Her* (Jonze, 2013) were used as stimuli. The sample of participants consisted of ten female and ten male 25–45 years old students or university-educated people, both from humanistic and scientific backgrounds. Half of the participants first listened to the music from one film and were asked to imagine a story that would go along with it, after which they watched the ending sequence from the other film. The other half was given the opposite pair of stimuli. Then, they were asked to evaluate the presence of certain characteristics in both stimuli using 26 semantic differential scales, 13 positive and their opposites, to analyze the data using the ANOVA method. Afterwards, individual, up to five minutes of interviews were followed with the intention of obtaining the participants' thoughts on the message and the idea of the film sequence they watched. The analysis of the interviews was done by comparing the stories based on one musical stimulus with the stories of their respective films.

Results

Analysis of semantic scales confirmed that there is a statistically significant difference between the experience of musical and film stimuli on 12 scales for 500 Days of Summer and on seven scales for Her, from which all the positive ones had higher values for the musical stimuli and lower for the film stimuli, and vice versa. Results of the interviews showed that the participants' stories largely coincide with the stories of the films, or their endings, especially at the connotative level.

Conclusions

The main conclusion is that film music can significantly influence ambivalent film endings' interpretation and aesthetic experience thanks to its aesthetic, metaphorical and narrative capacities. Likewise, this paper provides an insight into the otherwise intuitively approached question of musical influence on a dramatic narrative which can be applied to any dramatic work of art.

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Keywords: film music, perception, ambivalent film ending, conceptual metaphor, aesthetic experience.

Music and language reflected in literature through the prism of psychology

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Background

Literature offers an ideal artistic setting for a close encounter between music, language, and psychology. The various patterns of this trilateral interaction can be found in all forms of artistic texts, whether prose, poetry or essay. The domains involved can have different degrees of importance, but it is mainly the prism of psychology through which the author uses music and language to define his characters.

Aims

The aim of this presentation is to illustrate this interaction on the examples of several well-known Dutch and Flemish writers, of whom the majority are musicians as well, some also psychologists or psychiatrists. From the diachronic point of view, it is important to find out whether the developments within the science of psychology are reflected in the way music and language are used in literature.

Method

Using a philological approach, several literary texts will be examined more closely. A very fruitful encounter of the mentioned trinity occurred at the end of the nineteenth century during the literary movement known as the *Tachtigers,* which embraced many literary -isms: naturalism, sensitivism, symbolism, all very much indebted to the emerging science of psychology. The personality and work of Frederik van Eeden (1860-1932), psychiatrist and writer, illustrate the importance of music as a mean of expressing the subconscious. Half a century later, the Flemish writer Hubert Lampo (1920-2006) uses music in his work to come in contact with the collective unconscious. Besides those evident influences of Freud and Jung, a significant impulse came from structuralism and experimental music. Three contemporary female writers – Patricia de Martelaere (1957–2009, philosopher and writer), Margriet de Moor (1941, writer and musician) and Anna Enquist (1945, writer, musician, and psychoanalyst) – contemplate in their work, each in their own way, on the differences and similarities between music and language, their artistic autonomy and their expressive potential. The newest example of a double talent is the poet and composer Rozalie Hirs (1965), who has an innovative, psychoneurological approach to poetry and music.

Results

This brief (yet incomplete) survey of multidisciplinary interaction in the past hundred years of Dutch and Flemish literature witnesses that literature reflects not only the individual characteristics of the author but also the actual state of science. The developments within psychology are reflected in the role music and language play in literature.

Conclusions

An interdisciplinary approach to literature reveals the multiple bonds between science and art, showing that those bonds are embedded in a historical momentum.

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Keywords: Dutch and Flemish literature, music, psychology, language.

Screaming silence – sound spatialization design in electroacoustic music

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Background

As a sound designer, I am focused on electroacoustic music, soundscapes, and sound design for interactive installations. My artistic practice is based on the perception of the subjective experience of soundscape (Oliveros, 2005) of memory of safe space as a spatial sound installation. Perception and memory are the ones who take us from our current presence in real space to a place that is 'virtual', where we recreate an audio-visual space like an audio-visual work (Oliveros, 2010).

Aims

The questions I would like to answer concern the creative use of the propagation of sound in the media, and above all in the field of sound art and electroacoustic music: "How does sound space affect us physically and mentally, and can an emotional connection be created with spaces under the influence of one spatial sound experience?" (Conell, 2017). By creating a spatial sound installation, I examined the subjective experience of visitors to the sound piece and whether and in what way it connected them with some internal memory and the space in which that memory took place.

Method

Methods for this project rely on knowledge in the field of psychoacoustics (Amacher, 2004) and the way how the sense of hearing perceives space. That is why I created a spatial sound installation and made a public event attended by visitors of different ages (from 18 to 50 years old) and listening experiences (professional sound designers and non-sound designers). I was inspired by Jung's idea of *Temenos* (Jung, 1953), and I created the installation to look like a space where visitors would feel comfortable. Different concepts in the transmission of spatial information were also expected to have an impact on the listening experience, for which the multichannel spatial information transmission system (Baalman, 2010) has proven to be ideal for this.

Results

After the listening experience of the sound piece within the spatial sound installation, the listeners were immersed in the space itself that they could not distinguish between the real space in which they are and some 'virtual' that they created in their mind and that it managed to evoke memories of some places for who were emotionally attached (Oliveros, 2010). The embodied practice of listening brought the listeners closer to the limits of their consciousness as the feedback of experience has been stated to be focused on inner listening, immersion into space and the soundscape, which therefore opened up personal reflections and contemplation among the listener within the environment.

Conclusions

I explored interactivity between sound and space, mainly in electroacoustic music and soundscape, concentrating on methodologies that can meet the needs of artists. Emphasis was on the subjective experience of the listener, so sound design, taking into consideration both sound and space, affects the listener's consciousness, subconscious, and experience of the sound works themselves.

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Keywords: listening, sound spatialization, space, soundscape, electroacoustic music.

WORKSHOPS

Sound improvisation

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Background

Contemporary studies are increasingly confirming that sound is a phenomenon which can be used for therapeutic, pedagogical or wellness purposes, depending on the sound competence of the person or target group. Musical instruments, such as sound bowls, planetary gongs, koshi chimes and vimana, are percussion instruments with a specific pitch and simple playing technique. Peter Hess (2010) is a German author who has developed work on this spectre of musical instruments through recognizable sound methods.

Aims

The aim of the workshop is to acquaint the participants with the quality of sound and possibilities of specific musical instruments that we can use for different purposes depending on our competencies and the target group we work with. We will briefly review the historical origins and evolution of gongs, sound bowls and similar instruments in accordance with new materials and production techniques (Perry, 2016).

Audience activities

Following a short introduction, a 30-minute sound improvisation is planned, followed by a discussion. We will share our experiences on the role and benefits of sound wellness with different target groups, demonstrate the sound and technique of playing and give examples of all the ways we can manipulate sound improvisation in working with children in school (Hess, 2008). We will create joint sound improvisations with the workshop participants and give them an incentive to use them in their work with their students (Zećo & Silajdžić, 2020).

Implications for practice

The simplicity of playing these instruments and their specific sound frequencies can be ideal for working with different populations (Pesek & Bratina, 2016). Relaxing sound techniques can be available to children and adults to improve their quality of life.

Value for this conference

The sound improvisation workshop is an ongoing topic that, through its methods, includes various disciplines that question and bring forth all the possibilities which sound, and music have. This conference can indeed open a platform for connecting and strengthening this topic, not only musically/psychologically, but also through social, educational, and anthropological discourse.

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Keywords: improvisation, relaxation, sound, therapeutic instruments, wellness.

Advanced techniques for using the positive potential of performance anxiety

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Background

Performance anxiety is a common problem for musicians, amateurs and professionals alike (Wilson & Roland, 2002). It mostly occurs in people prone to nervousness, particularly in situations with a high degree of public exposure and during contests, and it is perhaps best understood as a type of social phobia (fear of humiliation; Radoš, 2010). A certain degree of tension can add a dose of "electricity" to the performance; however, a pessimistic soliloquy and a feeling of panic can seriously affect the performance (Leman et al., 2007/2012). It seems that the treatments which combine relaxation exercises with the anticipation of anxiety levels (developing realistic expectations about how one may feel during a performance) are the most efficient, along with cognitive elaboration (modifying the usual thoughts and attitudes that have a limiting effect, whatever their origin may be) (Mirović & Bogunović, 2013), and working on body posture (Valentine, 2004).

Aims

Building the capacity of teachers and teaching assistants to handle the problems that music students face in stressful situations related to performing in public.

Audience activities

The chosen format is a workshop (interactive exercises and tasks, discussion, making connections with professional experience) with a limited number of participants (no more than 20). The duration of the workshop is 90 minutes. In the workshop's final part, we will review the techniques by forming an active preparation program, after which there will be a group discussion and evaluation. The creator of the workshop is Mario Eterović. The main subject is building confidence (control of activities over time). The participants will be given a calendar with the task to divide it into four periods up until the moment of the performance and instructed to state the basic strategies for working with their student in each phase. We will then discuss the efficiency of these strategies and techniques while becoming better acquainted with the characteristics of individual mental stages. Finally, we will classify desirable behaviors during particular mental phases.

Implications for practice

Being familiar with these techniques empowers the teachers, helping them prepare their students for public performances while supporting the development of their integrity and autonomy; the techniques develop public performance skills in which the students are in charge of their own public performance experience. Efficient use of these techniques improves the

competencies and self-confidence of the teachers, broadening the arsenal of methods used to successfully guide student development.

Value for this conference

Within the context of the main subject of this conference, related to learning and enhancing musical skills, this workshop is intended primarily for those who are educators and/or performers; it can provide some novel information and enrich their experience in the field of psychological skills that are important for a confident performance that reaches a high level of artistry.

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Keywords: performance anxiety, public performance, musical performance, anxiety, MPA/ mastering performance anxiety.

emoTouch Web – a new web-based system for continuous real-time research with internet-connected devices

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Background

Music and its performance are dynamic phenomena that evolve over time. Therefore, research on musical processes needs suitable methods and tools that make these processes observable continuously in real time. This requirement for *continuous response* research approaches and tools has been stressed in music psychology in recent years (Kopiez, 2005; Kopiez et al., 2011; Schubert, 2010) and is basically similar to the situation in other research fields on time-bound phenomena, such as theatre, dance, film, commercials, lectures, speeches, or sports performances. Since the 1980s, several continuous response interfaces have been developed (see Kopiez et al., 2011). However, all these interfaces required special hardware (sliders, knobs, PCs with mice, PDAs, tablets with specific apps, etc.) that a researcher first had to provide to all participants before a study could be conducted. This imposes a significant limitation since for various reasons it is hardly possible, e.g., to provide hundreds of listeners in a live concert with costly iPads or wired hardware sliders.

Aims

emoTouch Web is a new web-based system for designing, conducting and evaluating continuous real-time studies that fundamentally solves these problems (Louven et al., 2022). The system uses modern web and network technologies to easily turn every modern smartphone, tablet, laptop or desktop computer into a flexible and reliable research tool for continuous response studies in laboratory, online and live settings. Even the participant's own devices can be used easily ("Bring-Your-Own-Device", BYOD). The system contains coordinated tools for the graphical and numerical review, evaluation and analysis of the collected real time data in longitudinal and cross-section. *emoTouch Web* may be used free of charge for scientific purposes.

The workshop introduces the capabilities of the system as well as the flow of a typical research process with *emoTouch Web*, from designing a real-time study to conducting and evaluating it.

Audience activities

Participants will also be able to try out the system directly with their own devices. They will create, design, conduct and evaluate their own real-time test studies and can immediately take part in the studies that have just been created, just by scanning a study-specific emoTouch QR-code with their devices.

Implications for practice

The workshop will show, how emoTouch provides completely new possibilities of real-time studies in different settings. Especially in live situations, the BYOD concept for the first time allows to easily conduct studies with hundreds of audience members.

Value for this conference

The conference will allow attendees to learn about a state-of-the-art software tool that opens up entirely new research possibilities.

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Keywords: software tool, continuous response, real time, live, BYOD.

ROUND TABLE

Round table: Regional Network Psychology and Music – status, activities, perspectives

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Background

The idea about Regional Network Psychology and Music (RNPaM) originated during the first international conference *Psychology and Music – Interdisciplinary Encounters,* in 2019. The main reason for establishing RNPaM was to interconnect colleagues from academic institutions, researchers, and practitioners in the interdisciplinary field of psychology and music in the region of the Western Balkan, primarily from Bosnia and Herzegovina, Croatia, Serbia, and Slovenia. RNPaM intends to support, encourage, and enhance the development of the psychology of music as an academic and applied discipline in regional centers but also to open possibilities for collaboration among colleagues from related social-humanistic disciplines who have interdisciplinary orientations and interests. At the same time, the broader interested public is invited to follow developments in the further progress of the RNPaM.

Aims

The Round Table RNPaM is organized with the intention to (1) present the development of the network during three years of founding, (2) inform about joint RNPaM activities, as well as individual and group activities of members in their local centers concerning research, publication, dissemination and application, (3) hear more about the academic representation of psychology of music in a frame of study programs in regional centers and (4) to learn more about work of school psychologists in music education and activities of the Psychology of Music Section, Serbian Psychological Association.

Contributors

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Main contribution

The RNPaM Round Table will enable sharing of knowledge about the Western Balkan regional network with a broader international community, attracting new members ready to cooperate and spread the idea about joined activities in the region related to research projects, publications, and applied actions. We hope to empower the network, initiate projects, and enhance new swings to the RNPaM growth in the Western Balkan region.

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Keywords: Regional Network Psychology and Music, psychology of music.

POSTER SESSION

What makes musicians infer teaching intentions?

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Background

Perceiving specific pedagogical intentions is vital when learning skills from others. In pedagogical settings where teachers are supposed to convey useful information to learners, it has been found that teachers often modulate their behaviour for teaching purposes. For example, adults are likely to modulate their speech and action (e.g., slower demonstration and exaggeration) for infants to help them acquire skills (e.g., Brand et al., 2002; Saint-Georges et al., 2013). Our previous research also demonstrated that expert pianists systematically modulated their sound in ways similar to infant-directed speech and action to teach expressive musical techniques such as articulation and dynamics (Tominaga et al., 2021, preprint).

Aims

Here we investigated whether listeners also perceive the modulations that expert pianists produce when they intend to teach as conveying pedagogical intentions.

Method

Participants who had at least six years of musical training were included for data analysis (Experiment 1: n = 20, Experiment 2: N = 20). They listened to piano recordings where an expressive musical technique concerning either articulation or dynamics was implemented. Half of the recordings was produced in a setting where pianists were instructed to play as if they were teaching the designated musical technique in a lesson, whereas the other half was produced in a setting where pianists were instructed to play as if they were performing it in a concert. After listening to each recording, participants were asked to judge whether or not each recording had been produced to teach a designated expressive technique related to articulation or dynamics. We performed correlation and multiple regression analysis to investigate which features of piano performance made musicians infer teaching intentions.

Results

When pianists played a simple musical scale (Exp 1), a slower tempo contributed to musicians' judgments of teaching. Performances with exaggeration of each technique (e.g., longer legato, shorter staccato for articulation, larger contrast between forte and piano for dynamics) were also more likely to be judged as teaching. When pianists played a more naturalistic piece (Exp 2), only performances with exaggerated dynamics were more likely to be judged as teaching.

Conclusions

Taken together, modulations of loudness (dynamics) seem to be reliably used to infer teaching intentions regardless of the complexity of a musical piece. Typical pedagogical behavior, such

as slowing down, may not necessarily be perceived as teaching when it comes to complex skills involved in artistic expression. We believe these findings can contribute to discussions on music education because the sound potentially conveys pedagogical intentions to learners even in the absence of verbal instructions.

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Keywords: teaching, intention, skill transmission, musical expression.

Correlations between personality traits and experience of Groove

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Background

Groove can be characterised as a multifaceted phenomenon resulting from a delicate interaction of music-, performance-, and individual difference-related variables, and associated with a desire to move and feelings of positive affect, immersion, and social connection (Duman et al., 2021). Musical features, listening situation, entrained body movements, as well as personal background, are also known to play a role in listeners' groove experiences (Senn et al., 2019). Despite factors such as familiarity, musical taste, and expertise being linked with the experience of a groove (see Senn et al., 2019), no study appears to have focused on the role of personality in such experiences. What we do know is that personality is related to music-induced movements (Burger, 2013) and that each of the Big Five personality traits (especially Extraversion and Neuroticism) is associated with different patterns of movement (Luck et al., 2010).

Aims

The aim was to explore relationships between the Big Five personality traits and listeners' groove experiences, including their interaction with other groove-related variables such as liking and familiarity. We hypothesised that particularly strong relationships would be observed for Extraversion and Neuroticism.

Method

In an online listening study, participants (N = 105) first completed a set of questionnaires, including the Ten Item Personality Inventory (TIPI). Participants also reported how easy they find it to dance to music in general ('dance ease'). Participants were then presented with thirty 25-sec musical excerpts consisting of popular songs from a range of genres with tempi centred around 120 bpm. Participants were asked to rate a number of groove-related variables on Likert scales, including their familiarity, liking, desire to move, desire to sing along, and experience of nostalgia for each excerpt.

Results

Personality scores from the TIPI were correlated with each of the groove-related variables. Significant correlations were obtained for two personality dimensions, Extraversion and Conscientiousness. Extraversion was positively correlated with dance ease (r = 0.36, $p < 0.001$), wanting to sing along ($r = 0.36$, $p < 0.01$), and wanting to move along ($r = 0.23$, $p < 0.01$). Conscientiousness was positively correlated with dance ease ($r = 0.22$, $p < 0.01$) and liking ($r = 0.21$, $p < 0.01$).

Conclusions

Our hypothesis was partially supported, with Extraversion being most strongly correlated with the groove-related variables. That Conscientiousness and not Neuroticism was also strongly correlated warrants further investigation. These findings contribute to the development of a psychological model of groove, demonstrating that personality plays a role in one's Groove experience. Results will be discussed in more detail at the conference.

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Keywords: groove experience, personality traits.

Investigating Mu oscillations elicited by Groove music

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Background

Groove, the popular musical term, is associated with feelings including a desire to move, positive affect, immersion and social connection (Duman et al., 2021). Listening to high-groove music has been reported to activate motor systems to a greater extent than low-groove music (Stupacher et al., 2013). Importantly, activation of motor areas (even during motor planning and an absence of overt movements) is suggested to support auditory information processing (Patel & Iversen, 2014). A recent study demonstrated enhanced mu activity (near somatosensory areas around 8-12 Hz and its harmonics 18-22 Hz) during passive music listening, believed to reflect motor inhibition (Ross et al., 2022).

Aims

The aim was to examine mu oscillations to naturalistic stimuli – commercial music recordings – rated from high to low groove. It was predicted that greater Mu power, indicating greater motor inhibition, would be observed in response to higher-groove music.

Method

Stimulus selection followed a two-stage process. First, in an online survey, 105 participants listened to 30 short (25 s.) musical excerpts representing a range of commercial genres, with tempi ranging from 100 bpm to 140 bpm. Participants rated a number of groove-related items for each excerpt, including a desire to move, liking, and familiarity. Second, based on the groove ratings, nine stimuli were selected to represent low, mid, and high groove (3 excerpts per groove level). Having selected the stimuli, electroencephalogram (EEG) data were collected from 8 healthy participants during a passive listening task. Participants were seated, presented with each excerpt, and asked to remain still while fixating on a point in space. Each stimulus was presented five times. Overall presentation order was randomised.

Results

Data were pre-processed, epoched, and spectral decomposition for each stimulus epoch was calculated to investigate spectral power in relation to the level of groove. Although, according to the previous literature, a greater Mu power to high groove stimuli would be expected, no difference in Mu power was observed for stimuli with different groove levels in the grand averaged spectral decomposition. Additionally, the individual spectral decompositions demonstrated various patterns.

Conclusions

Additional data might be required to reveal the hypothesised effects of groove. In addition, the experimental design will be adjusted in terms of (a) selecting the stimuli, (b) measuring groove ratings, (c) quantifying body movements simultaneously, and (d) adding a localisation task (i.e., silence, finger, and foot tapping periods). In terms of the analysis, a localisation analysis will be performed, and individual versus group analyses will be considered.

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Keywords: groove music, passive listening, EEG, mu oscillations.

The effects of background music in different contexts

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Background

The trend of background music featured in different everyday situations started in 1934 in the USA, by Muzak, which started producing and broadcasting background music. Before officially launching their music products, Muzak conducted a series of studies to investigate their music's effects on people in various environments such as elevators, grocery stores, restaurants, and hotels (Hargreaves & North, 1997). Since the company continued to exist up until 2011 and has served as an example to other companies and brands that are mentioned in this paper, it is evident that the effect of background music has proven to have a significant role in different contexts over the last couple of decades, such as in people's willingness to buy certain goods (North & Hargreaves, 2012).

Aims

By having examined available sources related to the topic, the primary goal of this paper and literature research was to examine what kind of influences background music can have on people in different contexts: commercial, personal, socio-psychological, mass-culture, and artistic. The emphasis was on how its influence and role affect people and society. The secondary goal was to provide people interested in this field of knowledge with detailed information about the topic by making the information available in a clear, structured form and pointing to the spheres of life where these influences can be found. A wished outcome during the writing process was to give thinking impulses related to this topic, examine the need for further research in this field, and initiate it if needed.

Method

The main method in writing this paper was formal and comparative analysis, along with a multidisciplinary approach to the subject, since it affects many spheres of life. Firstly, it was done by researching and reviewing the existing literature available in online sources and libraries such as *MGG Online*, *Oxford Music Online*, *J-store*, *Research Gate*, etc. Secondly, my research revealed sub-topics to work on. In the literature selection, the primary focus was put on sources from the 1990s until the present time that, included 12 texts.

Main contribution

Having collected and examined the findings of various experts in the fields of psychology, sociology, and marketing, it was clear to me that there is a subtle manipulative intention hidden behind the strategy of featuring music in different shopping contexts. The goal of this strategy is the maximization of a company's profit by creating a setting where the music relieves stress and gives customers a positive feeling. Among the most notable findings was that background mu-

sic influences customers' perception of time (Hargreaves et al., 2005). Also, chosen background music in certain stores is there to induce different feelings, such as nostalgia, belonging to a certain social class or sub-culture, as well as representing some pre-meditated values that the customers can resonate with. My research also showed that we are living in the middle of the influences that affect everyday life and change people's behavior, decisions, and state of mind.

Implications

One of the main conclusions of this work is that there is unquestionably a strategic appliance of music in our everyday lives that is being imposed by stores and companies, leaving customers in a position where they are being conditioned and subjected to the subtle manipulation hidden behind this strategy. The overall level of controlled conditions has a substantial role in leading customers to spend more time and possibly even more money in the stores. Since there is a lack of awareness and knowledge in people regarding this matter, this topic should be made into a public matter, as it concerns our decision-making processes. Additionally to the manipulative use, background music can also be used in a different, supportive way in mass culture and artistic settings.

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Keywords: background music, influence, consumer behavior, Muzak, strategy.

Dyslexia in the music classroom: How do dyslexic students visualize music and how to facilitate their learning process

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Background

Research has suggested that dyslexic people rely heavily on the right cerebral hemisphere of their brain to implement phonologic and many other types of processing (Eide & Eide, 2012). Knowing that the appointed hemisphere is in charge of creating bigger pictures, reconnecting information, and is also responsible for insight, intuition, imagination, and music awareness, one could rightfully assume that dyslexic people may have picturesque imagery or the ability to vividly visualize musical events. But, since no research has been done to address it, it all remains at the level of guesswork. Yet, the pedagogical domain of dyslexia in the music classroom has been somewhat prosperous by addressing teaching strategies and practical adaptations for such students (O'Brien Vance, 2004; Heikkila & Knight, 2012).

Aims

This work aims to open scientific discussion on music visualization in dyslexic students' mind's eye by presenting and analyzing the interview answers of three dyslexic music students regarding their personal experiences on the research topic. Also, it aims to emphasize music classroom adjustments from selected articles and will discuss possible positive effects of their usage in the process of learning.

Main contributions

The information presented in this presentation will contribute to a more profound understanding of the complex relations between dyslexic neurodiversity and auditory art. Summarization of classroom adjustments will give an insight into what can be done for students to have a productive time learning and to picture the music classroom as a 'safe space' that can help them find solace and creative escape from the outside world.

Implications

The pressure to succeed at the same pace and under the same conditions as non-dyslexic peers can consequently harm the self-esteem and learning motivation of dyslexic students. This applies to the regular, core-curriculum subjects in primary school as much as to subjects in music schools. This paper provides a possible way to solve this problem; a lucrative set of suggestions that can help dyslexic students to learn more efficiently and reduce the levels of frustration and failure. Analysis of research and given interview answers on the topic of musical imagery in the dyslexic student population will provide question-specific perspectives of young dyslexic musicians and may open space for new discussions and encourages further research.

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Keywords: dyslexia, music imagery, music education, teaching strategies.

The Psychology of Dance – book presentation

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Background

The literature corpus about dance in the Serbian language is not comprehensive. Significant works either deal with specific dance forms (folklore or ballet) or study dance from an anthropological or ethnochoreological point of view (*Knjiga o plesu* by Ana Maletić (1986), *Istorija igre* by Maga Magazinović (1951), *Igra* by Dragoslav Džadžević (2005), *Narodna igra* by the Janković sisters). In Serbian literature, the basic issues related to dance from the psychological point of view are covered only by one-sixth of the Psychology textbook for the second and the third year of art schools (Krešić Irena 1997, pp. 245-279). In this regard, a need for the scientific monography *The Psychology of Dance* has arisen. This book consolidates, analyses and studies the findings related to dance from the standpoint of the psychology of dance creation in the contemporary context of the 21st century. Since numerous new scientific discoveries in the sphere of the psychology of dance have been made and due to the fact that this topic is very current in foreign scientific literature and not represented enough in our language, the scientific monography *The Psychology of Dance* is the first work of this kind written in the Serbian language.

Aim

The central topic of this monography is discussing the phenomenon of dance from the standpoint of the psychology of art.

Main contribution

The book consists of seven chapters dealing with the phenomenon of dance itself, its characteristics and significance, the perspectives and approaches to studying it, as well as the differences between spontaneous dance and dance as a form of art. Moreover, since the psychology of art focuses on studying the creator, the creative process as well as the work of art and the environment in which creation takes place, the book address these topics in the context of the choreographer, performer, choreography and the audience. In the book, the significance and universality of dance is reassessed in the context of a wider perspective which surpasses the scope of the psychology of art. Apart from the main line of the text, where dance is analyzed as a subject of the psychology of art and where the factors of dance creation (choreographer, choreography, performer and the audience) are discussed, this book also contains appendices to every chapter that include the topics which are not directly related to dance as form of art, but are significant for understanding the phenomenon of dance.

Implications

The scientific monography *The Psychology of Dance* will be a significant contribution to the popularization of scientific research in the field of dance. The contemporary approaches to studying the psychological significance of dance and contemporary statistic research techniques and methods described in this monography can pose as a significant motivator for future research and the acquisition of new scientific results in this field. Moreover, the reason behind the creation of this monography lies in the need to promote dance as significant factor in maintaining physical and spiritual health of a contemporary human since the benefits can be achieved both through performing and through observing dance. This book has been written for a wide audience which includes the admirers of dance, professional performers, choreographers, experts, as well as those just entering the world of dance.

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Keywords: psychology, dance, choreographer, performer, choreography, audience.

Psychological experience of the public music performance

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Background

The theoretical basis for this research is the field of psychology of musical performance and primarily, Music Performance Anxiety (MPA). The basic features that usually determine stage fright in the field of students activity are highlighted. The performance skills worsening in a public context is a major stumbling block for many young artists (Bogunović & Mirović, 2013; Leman et al., 2012). From the individual performing experience, we can look at certain psychological aspects and causes of stage fright (Valentine, 2002). Knowledge of the type, symptoms, sources, and strategies for overcoming MPA is a prerequisite for successful pedagogical work.

Aims

The aim of the research is a different pedagogical approach to each individual as an attempt to overcome anxiety through the continuous creation of a sense of responsibility, but with the expression of joy during the public performance.

Main contribution

A certain degree of excitement is a prerequisite and motivational factor for musicians who improve their level of accomplishment. On the other hand, the inhibiting influence of stage fright implies acceptance of some effective cognitive strategies against performance anxiety: learning the skill of reconciling with some degree of anxiety, respecting the performance process without being overly preoccupied with evaluation, and using talking to oneself as a means of replacing extremely critical thinking. Certain student-performer problems, such as failures in previous schooling (slow reading and learning of sheet music), exam deadlines with extensive program requirements, insufficient practice, and memory problems, can often represent a source of performer anxiety. Concert practice, an effective practical strategy, allows students to go through 'the fire' of the public appearance.

Implications

Overcoming MPI implies a better understanding of the complexity of public performance and the creation of preventive programs against irrational fears. Awareness of the existence of three different sources of stage fright: the person (introversion, emotional instability, perfectionism, self-handicapping, anxiety as a personality trait), the performing situation (proximity to the audience, the importance of the listeners, the size of the room) and the musical task (selection of repertoire, realistic assessment of task mastery, self-efficacy). The greatest success of the performer is the victory over himself, that is, the experience of 'flow' (complete 'loss in music').

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Keywords: Music Performance Anxiety (MPI), sources, symptoms, overcoming strategies, personal experience.

Developing musical abilities of children attending Montessori early childhood education

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Background

In Montessori Early Childhood Education (ECE) different musical activities are often unevenly represented and not adequately planned (Dansereau & Wyman, 2020). Music is underserved in comparison to other subjects in Montessori pedagogy, therefore, Montessori ECE often do not offer children a suitable environment for the development of musical abilities and skills. This is especially problematic because early childhood is crucial for musical development, and musical instruction is the most effective in assisting children in developing the abilities they were born with (Shuter-Dyson, 1999).

Aims

This study aimed to examine the effects of the intervention on the musical aptitude of Slovenian preschool children from Montessori ECE.

Method

We designed a well-balanced music intervention program (32 didactic units) based on Montessori principles, emphasising different kinds of musical activities (musical performance, creating music, listening to music, and developing musical abilities, skills, and knowledge). The research was conducted using a pretest-posttest quasi-experimental non-equivalent groups design. We included 37 children aged 5 or 6 from two Montessori kindergartens, with one class representing an experimental group (n = 17) in which an intervention was implemented and one class a control group (n = 20) in which the music curriculum remained unchanged. Children's musical aptitude before and after the quasi-experiment was assessed using Gordon's (1983) Primary Measures of Music Audiation.

Results

The results of the mixed model ANCOVA examining differences in musical aptitude between the experimental versus the control group yielded a significant multivariate effect of time/group after controlling for the age of the children. The intervention's effect size was slightly larger for rhythm subtest than the tonal subtest.

Conclusions

We can conclude that well-balanced music intervention based on the principles of the Montessori pedagogy leads to an increased musical aptitude in preschool children. Our study's results align with previous research on the effects of musical interventions on children's musical development.

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Keywords: musical aptitude, Montessori approach, early childhood education.

Music students' listening preferences for violin intonation

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Background

In Western Classical music, 'good' intonation is often a highly desired quality in performance. Skilled musicians have to perform in such a way that even the most fastidious jury's ears are satisfied. These expert adjustments of interval sizes, often deviating from equal tempered tuning, are generally considered central expressive means in classical performance practice (e.g., Sundberg, 2013). Indeed, when working with instruments without a fixed pitch, the performers are permitted the freedom to choose their own intonation without conforming to one strict standard (e.g., Geringer, 2018). However, listeners' instrumental backgrounds and levels of expertise may influence group consensus regarding intonation preferences (Loosen, 1994). Also, the musical context has been shown to contribute to different widths of intonation tolerance (Fyk, 1982).

Aims

In the present study, we focused on the assessment of melodic intonation on the violin as a potentially variable between local musical contexts. We were interested to see (1) whether violin expertise strengthens listeners' consensus regarding preferred deviations from equal temperament, and (2) whether preferences regarding narrow intonation of semitones are contextually determined by musical structure.

Method

Thirty eight higher-education music students, 19 violin students and 19 music teacher students participated in the study. Three intonation variants were created for twelve pre-recorded excerpts, by manipulating the intonation of chosen critical semitones to the sizes of 110, 90, and 70 cents. The selection of the excerpts was based on ascending semitones that brought about "melodic anchoring" (e.g., Bharucha, 1996) to tonally more stable tones on different levels of tonal structure (either first and fifth scale degrees or various local chord tones). In a two-alternative forced choice study, the participants listened to paired samples that were identical in every aspect, except the differences of 20 or 40 cents in intonation.

Results

By contrast to the teacher students, the violin students seemed to have a stronger consensus about deviating toward the sharper side from the equal temperament. More interestingly, the violinist group more often preferred the extremely sharp intonation in metrically unaccented positions, especially in the major mode. Such a metrically sensitive preference for the narrowest minor seconds was not observed for the teacher students.

Conclusions

With the advantage of expert knowledge of the violin and its repertoire, the violinist group was more unanimous in their preference for what musicians often understand as 'sharp leading tones' and more sensitive to their placement in the musical structure. Our results suggest that intonation, as an aspect of musical expertise, cannot be fully understood without regard to the temporal structure of music.

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Keywords: melodic intonation, music perception, musical expertise, pitch, violin.

Case study of K-pop and K-drama fans on TikTok: The role of music in the creative audiovisual content making

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Background

There are many studies regarding social media due to its high relevance. Still, not many of them take into consideration the issue of music from the aspect of its role and use on such online platforms (Vizcaíno-Verdú & Aguaded, 2022). Teenagers and young adults preferably use TikTok to make and publish short videos, having a significant rise in popularity after the start of the Covid-19 pandemic. Recent research shows that 88% of users say the audio is a crucial part of the TikTok experience (Murray, 2021).

Aims

The media content on TikTok is characterized by great diversity regarding the presented topics and the manner of their realization. However, the activities of fans of a particular cultural product are usually thematically more homogeneous and aimed at promoting and presenting the 'adored' person, music, television series, etc. Due to that fact, the analyzed sample is limited to fans of Korean popular music (K-pop) and Korean television and web series (K-dramas) because recent research indicates that TikTok has become a viral platform among them (Jokić, 2022). The main goal of this paper is to gain a clearer insight into how users of the social network TikTok make use of music in the context of producing creative video content regarding their object of fandom.

Main contribution

Music on TikTok (and other social networks) plays a vital role in creating a complete user experience and points to the audio-visual syncretism typical for media content placed on online platforms. In this regard, the choice of a particular music snippet is not random or unadvised. Audio segments are usually chosen by considering different musical elements (melody, rhythm, lyrics, etc.), thus complementing and further describing the visual aspect. Also, the inspiration for making a particular video can come from the creative potential of a specific fragment of music. On the other hand, the question arises as to how TikTok can induce the popularity of a particular music track.

Theoretical conclusions were corroborated using two research approaches, primarily by conducting a content analysis of the 10 most popular K-pop and K-drama profiles on TikTok. Then, using the method of autoethnography for this paper, I created a TikTok fan account and started making use of my online presence by posting content modelled on other fans' work. In this way, I gained a more authentic and complete insight into the possibilities that TikTok provides to its users.

Implications

The main implication of this paper is that TikTok users, mainly teenagers and young adults, are directing the popularity of specific music trends worldwide and are successfully creating vast meanings and contexts in which particular music is explored, made, used and transformed.

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Keywords: TikTok, social media, music, K-drama, K-pop.

PARALLEL CONFERENCE PROGRAM

Book presentations

Book presentation: Timmers, R., Bailes, F., & Daffern, H. (Eds.). (2022*). Together in Music: Coordination, expression, participation*. Oxford University Press.

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Abstract

Musical ensembles can be understood and investigated as high functioning small group organizations that have coordinative structures in place to perform under pressure within strict temporal boundaries. Rehearsals and performances exemplify fruitful contexts for emergent creative behaviour, where novel musical interpretations are negotiated and discovered through improvisatory interaction. Furthermore, group music-making can be an emotionally and socially rewarding experience that enables positive outcomes for well-being and development. This book (Timmers et al., 2022) brings together these different perspectives, offering insight into the musical ensemble from three analytical levels: the meso-level considers ensembles as creative teams and investigates social and organisational interaction; the micro-level considers group music-making as forms of joint action, investigating timing and micro-level coordination; the macro-level examines health and well-being affordances associated with acoustical, expressive, and emotional joint behaviour. The interconnection between these three levels is discussed, exploring next steps in this line of research.

Renee Timmers is Professor in Psychology of Music at The University of Sheffield, where she directs the research centre Music, Mind, Machine in Sheffield. She is currently Head of Department of Music. Trained in musicology and psychology in the Netherlands, her research employs interdisciplinary methods and techniques to enhance the understanding of how music is performed and experienced. Recently published volumes include *Expressiveness in music performance: Empirical approaches across styles and cultures* (OUP, 2014). *The Routledge companion to music cognition* (Routledge, 2017), and *Together in music: Coordination, expression, participation* (OUP, 2022). She has served on the editorial board of several of the leading journals in psychology of music and is former President of the European Society for the Cognitive Sciences of Music (ESCOM). Within her work, she promotes interdisciplinary perspectives on music cognition, and the organization of virtual and live events to connect researchers from geographically as well as disciplinary diverse areas.

Book presentation: Antović, M. (2022). *Multilevel Grounding. A Theory of Musical Meaning*. Routledge.

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Abstract

Multilevel Grounding develops a new approach to musical meaning – Multilevel-Grounded Semantics, addressing the well-known paradox that music seems full of meaning yet there is little consensus among listeners on what exactly it is that this meaning communicates. Offering a balance between formalist and referentialist approaches, Antović's theory proposes that musical signification emerges from constant cross-space mappings between the musical structure and the listener's experience. The process is crucially constrained by several hierarchical and partly recursive levels of grounding: perceptual, schematically embodied, affective, conceptual, culturally elaborated, and individual. These levels are responsible for a range of phenomena that increase in complexity, from involuntary bodily responses to the manipulation of musical expectancies over cross-modal inferences relating the musical parameters to spatial domains to full-fledged experiential narratives accompanying the music, as in opera or film scoring. The book combines cutting edge insights from the fields of philosophy of mind, cognitive science, semiotics, linguistics, and music cognition, using a broad range of examples from traditional, classical, and popular world musics, into a theoretical system that shows how the focus on the grounding problem may help researchers convincingly resolve the apparent ungraspability of musical semantics.

Mihailo Antović (PhD) is a professor of cognitive linguistics in the Department of English, Faculty of Philosophy at the University of Niš, Serbia. He has presented papers on music, language, meaning, and cognition at more than 30 conferences in Austria, Greece, Germany, Italy, Hungary, Poland, Slovenia, Sweden, Turkey, the United Kingdom, the United States, and throughout the Balkans. He was a Fulbright visiting scholar at Case Western Reserve University and a research scholar at the University of Freiburg. His articles have appeared in a number of journals, including Metaphor and Symbol, Language and History, Musicae Scientiae, Language and Communication, Music Perception, Psychology of Music. In addition to several contributions to international edited volumes (Cambridge Scholars Publishing, John Benjamins, Oxford University Press), he has also co-edited a volume on oral poetics and cognitive science for De Gruyter. He is currently writing a book commissioned by Routledge, entitled Multilevel Grounding: A Theory of Musical Meaning. He has given invited talks in Austria, Bulgaria, Croatia, the Czech Republic, Germany, Greece, Italy, Slovakia, Spain, the UK, the US, and throughout the countries of the former Yugoslavia. He heads the Center for Cognitive Sciences, University of Niš.

Psychoacoustic foundations of major-minor tonality (MIT Press, in preparation)

Richard Parncutt

Centre for Systematic Musicology, University of Graz, Austria

richard.parncutt@uni-graz.at

Abstract

Despite global cultural diversity and Western modernist exploration, most music is still structured around major and minor triads and/or keys. How does major-minor tonality (MmT) work? Older theoretical ideas include Riemann's harmonic function and Schenker's organic, reductive analysis. The book combines these with newer approaches including Terhardt's psychoacoustic theory of pitch perception and Krumhansl's cognitive theory of tonal hierarchy. Forte's pitch-class set theory is adopted as a quasi-neutral foundation. Inspired by a combination of music theory, musical practice and intuition, empirical psychological research, and statistical corpus analyses, the book navigates a middle path between cultural relativism and scientific positivism. Musical intervals are approximate, learned, categorically perceived pitch distances in oral-aural tradition – consistent with relevant ethnomusicology, psychoacoustics, and metaphysics. Musical tones are assigned to twelve nominally equal, approximately tuned chromatic scale-steps; their meanings and intonations depend on tonal context – not enharmonic spelling. Consonance/dissonance is culture-specific, multi-faceted, and psychologically grounded. Pitch structures are prolonged at different hierarchical levels. Topics addressed include chord roots, leading tones, harmonic progression, modulation, classical versus jazz harmony, and cognition of musical structure. The big picture includes theoretical evaluation and perceptual universals versus cultural diversity.

Richard Parncutt is a Professor of Systematic Musicology at the University of Graz, Austria (since 1998) and director of the Centre for Systematic Musicology, the University of Graz (since 2009). He was chair of the 15th International Conference on Music Perception and Cognition combined with the 10th triennial conference of the European Society for the Cognitive Sciences of Music (ICMPC15/ESCOM10), Graz, Montreal, La Plata, Sydney (23 – 28 July 2018) and president of the European Society for the Cognitive Sciences of Music (ESCOM, 2015 – 2018). He holds Bachelor's degrees in Music and Science, University of Melbourne, Australia (1981), an Honours (Master's) degree in Physics, University of New England (UNE), Australia (1982), and an interdisciplinary PhD in psychology, music, and physics (UNE) with supervisors Catherine Ellis (music), Neville Fletcher (physics), William G. Noble (psychology) (1987). His research addresses musical structure (pitch, consonance, harmony, tonality, tension, rhythm, meter, accent), music performance (psychology, piano, applications), origins of tonality and of music, and musicological interdisciplinarity, and it involves music psychology, music theory, music acoustics, psychoacoustics, sound and music computing, music information retrieval, music sociology, music philosophy, music history, ethnomusicology, and music education. He has books with Springer and Oxford and articles in *Music Perception*, *Musicae Scientiae*, *Perception & Psychophysics*, *Journal of New Music Research*, *Music Performance Research*, *Contemporary Music Review*, and *Perspectives of New Music*.

Round table in honour of Prof. Dr Ksenija Radoš 47 years of Psychology of music in Serbia

Participants: Ksenija Radoš[1], Ivan Ivić[2], Ana Altaras Dimitrijević[3], Blanka Bogunović[4], Aleksandar Baucal[5]

[1,2]*Department of Psychology, Faculty of Philosophy, University of Belgrade, Serbia, retired*
[3,5]*Department of Psychology, Faculty of Philosophy, University of Belgrade, Serbia*
[4]*Faculty of Music, University of Arts in Belgrade, Serbia*

Abstract

I started researching musical giftedness and exploring the psychological nature of musical abilities as a young lecturer, in 1975, at the Institute of Psychology, Department of Psychology, University of Belgrade (UoB). Owing to my psychological (Ph.D. in Psychology) and musical education (BA in Piano Performance, Faculty of Music Arts, Belgrade), I developed a strong interest in cognitive aspects of musicality in children and its links with intellectual abilities. My theoretical and empirical research also covered topics such as structure, development and assessment of musicality, the foundation of preschool music development, children`s expressions in arts and psychological and musical determinants of children`s success in learning music. In parallel, my teaching activities within the Psychology Department (UoB) included the subjects of Psychology of Intelligence, Psychology of Giftedness and Mental testing of children. In the late 70s, I was invited to convene modules and start lecturing Foundation Psychology course and Educational Psychology at Faculty of Music Arts (FoM), Belgrade. However, the most important "academic" step was the introduction of Psychology of Music under my leadership as a subject in the FoM curriculum in the early 90s. This subject is now continuing to thrive in the 21st century. Key research outputs from my work include two monographs: *Psychology of music abilities* (1983, 2nd ed. 1998) and *Psychology of music* (1996, revised and extended in 2010). Other notable efforts include standardization of the three the most influential musical abilities tests (Gordon's, Bentley's and Wing's) for Serbian pupils (musical and non-musical) across broad age span (5 to 18 years), which are widely used in music education practice since 1989, for psychological assessment of musicality. The publication of the 1996 monograph signaled the establishment of the Psychology of Music as an autonomous psychological discipline in Serbia. For this book, I was presented with a prestigious "Dr. Borisav Stevanović" award for scientific contribution to Psychology in Serbia.

Professor Dr. Ksenija Radoš, retired

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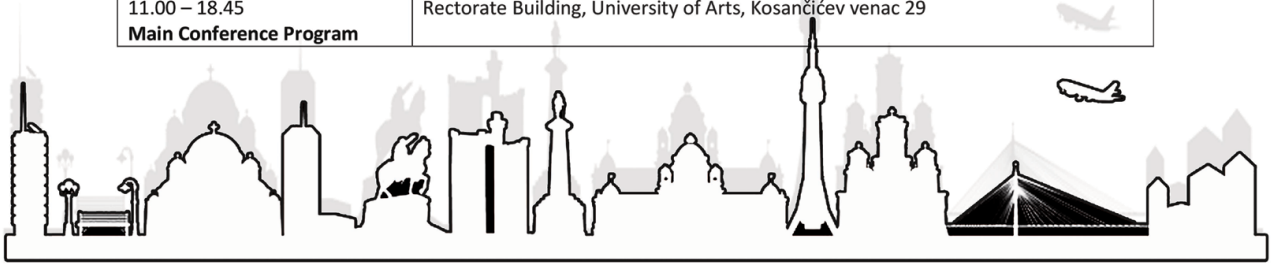
Second International Conference

Psychology and Music – Interdisciplinary Encounters

October 26-29, 2022, Belgrade

When? What?	Who? Where?
Wednesday, October 26, 2022 16.00 – 17.30 **Keynote Speech**	**David Dolan: Improvisation in classical music** *Guests: String quartet, Faculty of Music in Belgrade* Faculty of Music, University of Arts in Belgrade, Kralja Milana 50, *Great Hall, 1st Floor*
Wednesday, October 26, 2022 20.00 – 21.00 **Concert**	**David Dolan and the Faculty of Music String Quartet** **Towards the revival of Classical improvisation and its re-integration in classical music performance** The Residence of Princess Ljubica, Kneza Sime Markovića 8
Thursday, October 27, 2022 10.00 – 11.45 **Parallel Program**	**Book presentations** **Renee Timmers, Mihailo Antović, Richard Parncutt** Institute of Psychology, Faculty of Philosophy, Čika Ljubina 18–20
Thursday, October 27, 2022 12.00 – 13.30 **Parallel Program**	**Round table in honour of Prof. Dr. Ksenija Radoš** **47 years of Psychology of music in Serbia** (in Serbian) Institute of Psychology, Faculty of Philosophy, Čika Ljubina 18–20
Thursday, October 27, 2022 16.00 – 17.30 **Opening Ceremony** **Keynote Speech**	**Andrea Schiavio** **Embodied musical synergies. Action and interaction in the musical moment** Ilija M. Kolarac Foundation, Studentski trg 5, *Small Hall, 1st Floor*
Thursday, October 27, 2022 18.00 – 18.30 **Concert at the opening**	**Ensemble for Different New Music (ADNM)** ***Serbian composers: Mindfields of minimal music*** Ilija M. Kolarac Foundation, Studentski trg 5, *Music Gallery, Ground Floor*
Friday, October 28, 2022 10.00 – 11.00 **Keynote Speech**	**Alexandra Lamont** **Music that matters: Unique and collective features in experiences of favorite music across place and time** Rectorate Building, University of Arts, Kosančićev venac 29
Friday, October 28, 2022 11.00 – 18.45 **Main Conference Program**	**Thematic Sessions 1 to 8, Symposia, Workshops** Rectorate Building, University of Arts, Kosančićev venac 29
Saturday, October 29, 2022 10.00 – 11.00 **Keynote Speech**	**Heiner Gembris** **Musically talented in competitions** Rectorate Building, University of Arts, Kosančićev venac 29
Saturday, October 29, 2022 11.00 – 18.45 **Main Conference Program**	**Thematic Sessions 9 to 15, Round Table, Poster Session** Rectorate Building, University of Arts, Kosančićev venac 29



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Concert at the opening

Thursday, October 27, 2022, at 18.00
Ilija M. Kolarac Foundation, Studentski trg 5
Music Gallery, Ground Floor

45th Anniversary

Ensemble for Different New Music (ADNM)

Dragoljub Ilić Ilke, Branka Parlić, Lidija Stanković, Olivera Radmanović, Andrej Negić, Milena Petrović i Miroslav Miša Savić

Serbian composers: Mindfields of minimal music

Negić, Ilić, Savić

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Concert

Wednesday, October 26, 2022, at 20.00
The Residence of Princess Ljubica, Kneza Sime Markovića 8

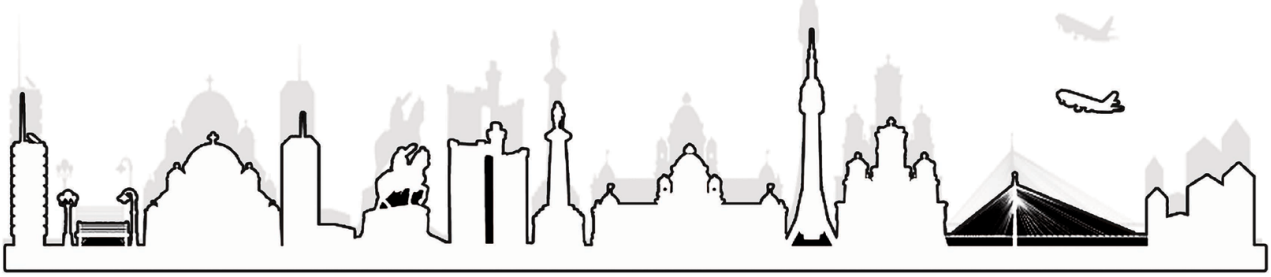
David Dolan
and the Faculty of Music String Quartet

Professor David Dolan
Head of the Centre for Creative Performance & Classical Improvisation
Guildhall School of Music and Drama in London, United Kingdom

String Quartet from the Faculty of Music, University of Arts in Belgrade
Staša Žikić (violin), Nikola Božić (violin),
Nemanja Adamović (viola), Vuk Ovaskainen (cello)
guided by Assistant Professor **Nemanja Stanković**, DMA

Towards the revival of Classical improvisation
and its re-integration in classical music performance

Program
Beethoven String Quartet op.18 no.4 in c minor



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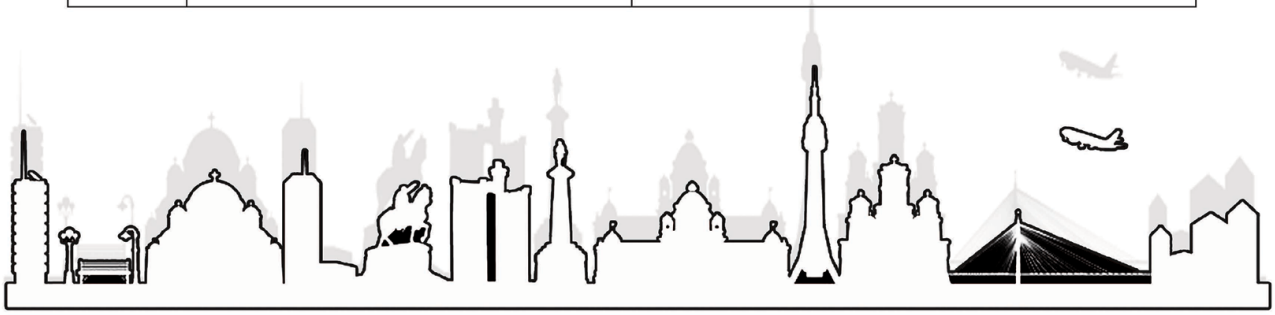
Thursday, October 27, 2022, at 10.00 - 13.30
Institute of Psychology, Faculty of Philosophy, Čika Ljubina 18-20

Parallel Program

10.00 – 10.30	**Renee Timmers** Department of Music, The University of Sheffield	**Book presentation** Timmers, R., Bailes, F., & Daffern, H. (2021). *Together in Music. Coordination, expression, participation*. Oxford University Press.
10.35 – 11.05	**Mihailo Antović** Center for Cognitive Sciences, University of Niš	**Book presentation** Antović, M. (2022). *Multilevel Grounding. A Theory of Musical Meaning*. Routledge.
11.10 – 11.45	**Richard Parncutt** Centre for Systematic Musicology, University of Graz	**Book presentation** *Psychoacoustic foundations of major-minor tonality* (MIT Press, in preparation)
12.00 – 13.30	**In honour of Prof. Dr. Ksenija Radoš** Department of Psychology, Faculty of Philosophy, University of Belgrade, retired **47 years of Psychology of music in Serbia**	Participants: **Ksenija Radoš** **Ivan Ivić** **Ana Altaras Dimitrijević** **Blanka Bogunović** **Aleksandar Baucal** **Moderator: Marina Videnović**



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