



Psychology and Music
Interdisciplinary Encounters
Belgrade 2019

PROCEEDINGS

FIRST INTERNATIONAL CONFERENCE

Psychology and Music – Interdisciplinary Encounters

October 24–26, 2019, Belgrade



University of Arts in Belgrade
Faculty of Music
Belgrade, 2020

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Psychology and Music – Interdisciplinary Encounters
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Editors

Blanka Bogunović and Sanela Nikolić

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Faculty of Music, University of Arts in Belgrade



UNIVERSITY OF ARTS IN BELGRADE
FACULTY OF MUSIC

Belgrade, 2020

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Editors' Note

A keen interest in research and application of scholarly knowledge in the field of psychology of music has flourished in Serbia from the 1980s onwards. It started at the Department of Psychology and Institute for Psychology, Faculty of Philosophy, University of Belgrade, and further evolved through the founding of the Psychology of Music Section within the Serbian Psychological Society in 1996. Psychology of music fully developed at the Faculty of Music, University of Arts in Belgrade after 2006. The work of a comparatively small number of colleagues resulted in published books and articles, research projects, as well as in the development of a strong network of psychological services in specialist music schools in Serbia. Hence, the first international conference, *Psychology and Music – Interdisciplinary Encounters*, held from October 24 to 26, 2019 in Belgrade, followed as the next step in the further development of the psychology of music in Serbia and the region. It was encouraged and supported by the European Society for the Cognitive Sciences of Music (ESCOM) and the Society for Education, Music, and Psychology Research (SEMPRE) from Great Britain.

The conference aimed to bring together diverse research endeavours of individuals and institutions from Serbia, the Western Balkan region and European countries in the interdisciplinary field of psychology and music. Providing a setting in which researchers can make their work visible to each other and to a broader audience interested in these topics was an essential outcome of the conference. Other tasks of the conference were: a) to foster interdisciplinary empirical and theoretical research and knowledge exchange in the field of psychology and music and related scientific and humanistic disciplines; b) to encourage the practical applications of academic knowledge, primarily in the field of music education for gifted, vocal-instrumental performance and the musicians' health, and the functions of music in everyday life; c) to create possibilities for international encounters and strengthen the networks and collaboration between researchers in different geographic areas; and d) to bring together experienced scholars and early-career researchers, psychologists, musicians with different profiles, and representatives of related scientific and applied disciplines.

We may say that the conference fulfilled the goals that we defined and generated surprisingly strong interest. We had 200 registered participants (100 of them instrumental teachers and psychologists from specialist music schools), some ten independent listeners, 90 presenters in 14 thematic sessions organized in three parallel sessions. Participants came from 18 countries, even from other continents, as well as from Serbia. Such a strong response implies that the field of psychology and music is highly exciting and challenging, and it made our efforts worthwhile. During the conference, we founded the Regional Network Psychology and Music (RNPaM), which gathers 13 members from the Western Balkan Region (Croatia, Slovenia, Bosnia and Herzegovina, Serbia) at the moment and several associated members, as well as interested supporters. All active conference participants were invited to contribute to these electronic proceedings voluntarily, and thirty of them did so. Unlike abstract submissions, the proceedings papers were not reviewed. More information about the conference and the Abstract Booklet, which contains contributions of all conference presentations (86), can be found on the conference [website](#). You can also find more information about [RNPaM](#) there.

We would like to heartily thank the distinguished people of [ESCOM](#) who gave support and an outstanding added value by their presence and keynotes – John Sloboda, Renee Timmers, Jane Ginsborg, and Richard Parncutt. They attracted particular attention and gave credibility to the conference. Great support for the conference also came from [SEMPRE](#), through providing travel awards to several active student participants and assisting them in their research endeavours. ESCOM Early Career Researcher Award was given to Johanna N. Wilson (University of Jyväskylä, Finland) and

Honorary mention to Đorđe Stepanović (Faculty of Music, University of Arts in Belgrade, Serbia). At the opening of the conference, we had the honour to hear the address by Ksenija Radoš, who is a founder of the psychology of music in Serbia and was a professor at the Faculty of Philosophy, University of Belgrade, and Faculty of Music, University of Arts in Belgrade. We also appreciate very much the presence of the colleagues who, as the representatives of the co-organizing institutions, addressed the audience at the opening: Mirjana Nikolić (University of Arts in Belgrade), Ivana Stepanović Ilić (Institute for Psychology, Faculty of Philosophy, University of Belgrade) and Branka Tišma (Serbian Psychological Association). Recognized Serbian musicians, who depicted the unity of music and psychology through the cross-modal representation of music, gave their valuable contribution during three concerts performed in the frame of conference events. These were Olivera Radmanović, *Trio Movement*, and *Ansambl MultiMed 3*. We acknowledge the role of the leading organizer, the Faculty of Music, University of Arts in Belgrade, and the support of the Dean of the Faculty and all the colleagues from the administrative and logistic backup, who helped us 'behind the scenes'. We especially thank the members of the programme, organizing and reviewer committees, and, last but not least, our precious group of volunteers, dear students, and young colleagues.

Blanka Bogunović and Sanela Nikolić
Faculty of Music, University of Arts in Belgrade
April 2020

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Musical Development in Pre-school Age

Lullabies and Preterm Infants: A Contribution for the Study of Infant Directed Singing in the NICU

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Abstract

The practice of singing to babies has been observed around the world, in all cultures and historical periods. In cases of prematurity, benefits of maternal singing have been reported for both the baby and maternal anxiety levels. Therefore, several authors have expressed concerns about the possible decrease in singing practice for the infant and, consequently, the loss of transmission of children's oral repertoire. In this study, our purpose was to understand what and how do mothers sing to their babies, in the specific case of hospitalized preterm infants in a Portuguese NICU. We used a mixt method in a study case where 36 mothers sang without words to their hospitalized preterm infants during Kangaroo Care. We parametrized the repertoire and analyzed its characteristics, namely the melodic contours, range pitch, melodic intervals, rhythm, tempo and form. The participants also responded to a questionnaire regarding the habits of singing to their babies. Older and more educated mothers sang more pre-existent melodies and younger mothers tended to improvise. This study showed that the former mothers tend to sing adult songs and children's mediated songs to their hospitalized babies more than traditional Portuguese play songs or lullabies suggesting that mothers are not familiar with the Portuguese repertoire, as shown in other studies. It is possible that the sociological changes Portuguese families, as well as the development of automatic reproduction devices that replace a mother's voice, led to this fact. The latter mothers' improvised singing was highly repetitive and mostly by whole tones. These characteristics, may be related to an attempt to please and calm the baby, were also common to a comfortable chant for a female voice without practice.

Introduction

Singing for babies is an extremely common practice, observed in all cultures and historical periods (Abrantes, 2001; Malloch & Trev-

arthen, 2009). The way mothers communicate vocally with their babies, either through speech or singing, has specific characteristics (Fernald & Simon, 1984; Trehub et al., 1997) that render these intonations are identifiable by infants and adults. It has been observed that children prefer the infant-directed versions of songs to adult-directed ones (Trainor, 1996). The practice of singing to the baby is so common that it generates a repertoire of songs "for children". These songs emerge in a variety of contexts and during specific activities as lulling, playing, teaching children about everyday practicalities, etc. In this sense, we observe two very distinct styles of infant-directed repertoire used in different contexts and that communicate different messages: *Lullabies* and *Playsongs* (Rock, Trainor, & Addison, 1999; Trainor, 1996; Trehub & Trainor, 1998). While playsongs stimulate the infant and, according to A. Creighton, "engage the infant in play" (Creighton, 2011: 43), lullabies calm and relax the baby and are referred to as simple, repetitive, with a soft texture and slow tempo (Bargiel, 2004; Creghton, 2011; Trainor, 1996; Trehub & Schellenberg, 1995; Trehub et al., 1997). These characteristics are identical in many different cultures (Trehub, Unyk, & Trainor, 1993a) and these songs can be identified by adults from different cultures and musical systems, even when the lyrics were filtered out (Trehub, Unyk, & Trainor, 1993b). Trehub points that there are mostly mothers who sing for infants (74%) followed by fathers (14%) and siblings (8%) (Trehub et al., 1997). Another study affirms that lullabies are used mainly for younger children (Silva, 2016) and that parents sing more to their firstborn and less to the next children (Bonnár, 2014). Through lullabies and

play songs, mothers convey positive emotions and, according to Andrea Cevasco (2008): “results seem to indicate that these emotional nuances regulated her infant’s state, either arousing or soothing according to specific circumstances” (p. 38).

In cases of prematurity, the benefits of maternal singing for both the baby and the mother’s anxiety levels have been considered (Adén, 2014; Arnon et al., 2014). Especially in the NICU context, this seems to be a fundamental interaction activity in the mother/baby relationship (Cevasco, 2008). Pre-term infants in Neonatal Intermediate and Intensive Care Units are exposed to high levels of distress, noise either from medical equipment or professionals and families. That has been observed to cause behavioral changes and harmful variations in infant’s sleep patterns. According to Merenstein and Gardner (2006) “sleep disruption may interfere with growth and development by alternating neuronal maturation, cortex development, and growth hormone secretion” (pp. 269–270). Then, to prevent these stressful occurrences for premature infants they are frequently administered sedatives (Garunkstiene, Buinauskiene, Uloziene, & Markuniene, 2014). It has been observed that music therapy interventions are an alternative to pharmacological sedation that improves the infant’s sleep patterns (Loewy, Hallan, Psych, Friedman, & Martinez, 2005). Schwartz (2004) referred that lullabies would be the most appropriate repertoire to sing to the babies in order to tranquilize them during these procedures.

While the beneficial effects of singing for infants are reported, the decline of this practice and consequently the loss of transmission of children’s oral repertoire has been a concern on the part of many authors today. This has been related to the introduction of women into the workplace and popularization of automatic audio reproduction devices such as CD players and more recently digital audio platforms (e.g., iTunes, Spotify or Youtube) as well as musical toys (Baker & Mackinlay, 2006; Custodero, Britto, & Brooks-Gunn, 2003). These authors argue that the preferences of parents in contemporary urban homes are also fueled by the booming of

the commercial music market that promotes products as not only suitable for babies but as creators of small geniuses (Baker & Mackinlay, 2006: 148).

Aims

Since lullabies seem to be more common in infants’ early months and fragile states, and the practice of lullaby may show improvements in the sleep patterns of premature babies, we studied the repertoire sung by mothers of hospitalized infants between 32 and 37 weeks post-gestational age, in the context of the Neonatal Intermediate Care Unit of the Maternity Dr. Alfredo da Costa in Lisbon, Portugal. Our aim was to understand what and how these mothers sing, studying the repertoire of lullabies and play songs as a specific behavior of mother/infant interaction. We expect mothers to use mostly a children’s repertoire as they are addressing to their babies. We expect that, given this infant’s condition of prematurity and fragility, mothers choose to sing lullabies over to play songs. On the other hand, we also expect that the repertoire reflects the tendency pointed by several authors of a repertoire less associated with the traditional repertoire of oral transmission and more directed to mediated music.

Method

After approval by the Ethical Committee of the Central Lisbon Hospital Center (267/2015), recruitment was performed at the Intermediate Neonatal Care Unit of the hospital Maternidade Dr. Alfredo da Costa (Lisbon, Portugal), between June 2016 and April 2017. We recollected a sample of fifty mothers of preterm infants to participate in this study. The participants signed an informed consent form after being informed about the aims and procedures of the study.

Exclusion criteria. Participants were excluded from the study based on the following criteria: a) age (younger than 19 years old); b) language (not understanding and speaking Portuguese fluently); c) auditory deficit (in infant or mother); d) gestation without medical supervision; e) previous psychiatric pathology

or serious negative emotional states and f) addictive behaviors. Another exclusion criterion was based on the baby's state at the observation moment. We excluded dyads where the babies had: a) post-menstrual age lesser than 32 weeks or higher than 37 weeks; b) instability of the vital parameters; c) support of Continuous Positive Airway Pressure (CIPAP); d) intraventricular hemorrhages; e) congenital or neurological anomalies of auditory cortex; f) nasogastric tube and g) supporting breathing. Dyads were also excluded if skin-to-skin kangaroo care had not been practiced at least once. For clinical and circumstantial reasons, ten dyads couldn't participate in the study. Among the 40 observed dyads, 4 were excluded due to perturbations during the recording procedure, and 36 dyads were selected for the study.

Sample characteristics. Mothers' mean age was 34 years ($SD = 5.63$, $min = 21$, $max = 48$), the majority with Portuguese nationality ($n = 26$, 72.2%), with a high number of education years ($M = 15.33$, $SD = 3.69$, $min = 6$, $max = 24$). Most participants were married ($n = 23$, 63.9%; single = 19.4%; common law marriage = 16.7%) and primiparous ($n = 22$, 61.1%). The clinical variables regarding the mother indicate that the clear majority had no spontaneous abortions ($n = 23$, 63.88%), no voluntary abortions ($n = 30$, 83.33%) and no abortions for medical reasons ($n = 23$, 63.88%) prior to this study. Also, we observed 26 pregnancy with one fetus (72.2%), 7 cases with two fetuses (19.4%) and three cases with three fetuses (8.3%). Most of these pregnancies had been planned and desired according to the mother ($n = 31$, 86.1%). 24 cases of caesareans (66.7%) spontaneously triggered labor in 19 cases (55.9%) and induced in 15 cases (44.1%). Regarding the infants, the mean gestational age at birth was 30 weeks and 4 days ($M = 212.78$, $SD = 17.11$, $min = 178$, $max = 241$) and 34 weeks and 1 day of post-menstrual age at observation ($M = 239.27$, $SD = 9.28$, $min = 224$, $max = 259$). Mean chronological age was 26.5 days ($M = 26.5\%$, $SD = 19.99\%$, $min = 4$, $max = 81$), mean weight at birth was 1265.47 g ($SD = 308.20$, $min = 590$, $max = 2017$) and mean weight at observation was 1538.05 g (SD

= 237.72, $min = 1060$, $max = 2185$). Twenty of the infants are male (55.56%) and 16 (44.44%) female.

Instruments. We recollected data based on a Sociodemographic and Clinical Questionnaire designed for this investigation with items about age, education, citizenship, marital status, occupational status, social and economic status, number of previous children, obstetrical data (spontaneous abortions, voluntary abortions, interruptions by medical advice, number of fetuses at the last pregnancy) and pediatric data (gestational age at birth, birth weight, delivery type, Apgar, age at observation, weight at the observation).

The participants also responded to a questionnaire about their Sound-Music Experience Before and After Birth that included items about maternal behavior of sound-music and vocal nature as well as about maternal perceptions related to the baby's responses to the sound-music environment. Answers were recorded on Likert scales varying from 0 (I completely disagree) to 5 (I completely agree).

Equipment and procedure. Observations took place in the Intermediate Neonatal Care Unit. Mothers were asked to sit in a chair, and to position the baby according to the Kangaroo Supported Diagonal Flexion Positioning (KSD-FP) (suggested for Buil et al., 2016). The mother was provided with a large scarf for holding the baby in skin-to-skin contact, and an additional strap was provided to support the baby's neck in such a way as to enable the mother to maintain visual contact. One camera (Panasonic 4K HC-VX870) was placed and oriented toward the dyad. The camera was connected to an external microphone placed near the mother. The 15-minute interaction was recorded and analyzed.

Design. During the 15 minutes of the research protocol, the participants were in Kangaroo Supported Diagonal Flexion Positioning, and the infants' state at the moment of observation corresponded to a state of quiet alertness or drowsiness according to the Brazelton & Nugent's scale (2011: 49–51). During the first 3 minutes, mothers were asked to remain silent

(baseline period) and proceed to sing or speak to the baby in the next 3 minutes. They proceeded with a silent period (3 minutes) and were asked to either speak or to sing to their babies once again, alternating with the previous speaking or singing condition. In the end, a final 3-minute period of silence was requested (offset period). For the speaking condition, mothers were asked to speak to their babies as they usually did, with no pre-established script. For the singing condition, mothers were asked to hum for their babies without words. In group 1, mothers began with the singing condition, and in group 2, mothers began with the speaking condition. For each dyad, one video recording (MP4) and its corresponding audio record (WAV) were coded. As for this study, we were interested in studying the infant-directed singing. As so, we only consider the singing excerpt.

Results

Regarding the questioning about the singing practices, we can conclude that the percentage of mothers who claim to sing for the baby in the incubator is slightly lower than the percentage of mothers who claim to sing during Kangaroo Care. The percentage of mothers who claim to speak to their baby in the incubator is higher than the percentage of mothers who claim to speak to their baby during Kangaroo Care. In fact, the overwhelming majority of mothers agree that they talk to the baby when it is in the incubator, while only about 60% of mothers say they sing in the same condition (see Fig. 1).

When asked to sing to their babies, 26 mothers sang melodies or variations we considered pre-existent or variations of pre-existing melodies, 2 of these mothers also sang melodies from

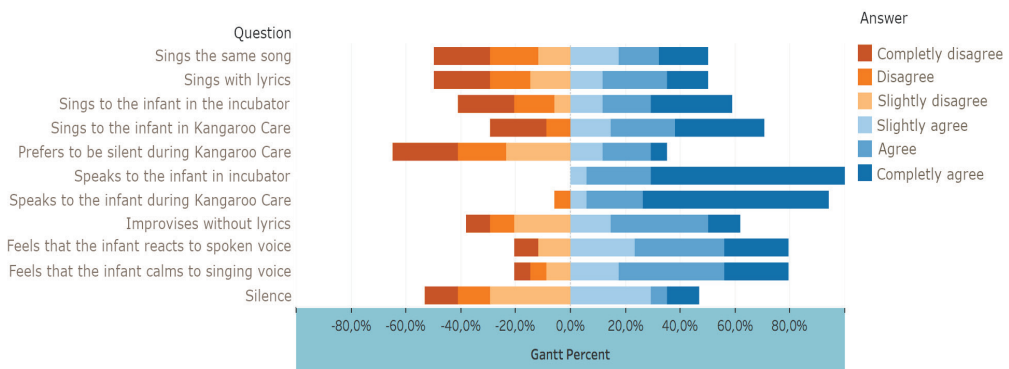


Figure 1. Data about the infant directed singing practices during the first weeks after the birth.

Analysis method. ELAN software (EU-DICO Linguistic Annotator) version 4.9.4 was used for coding each audio sample. All maternal vocalizations and pauses were coded and quantified in terms of frequency (number of vocalizations per minute) and duration (in ms). The repertoire sung by the mothers was transcribed using a spectrum analysis program (Anthem-Score). We identified the repertoire sung by mothers as improvised or non-improvised and made a qualitative musical analysis. We analyzed the factors a) range; b) intervals; c) repetitions; d) texture and e) measure.

three different songs and 1 sang two melodies. The remaining 10 participants improvised. Regarding the recognized pre-existent repertoire, 78.3% were children's songs, from which 38.9% were play songs and 61.1% lullabies. These play songs were mainly from an international oral tradition repertoire such as "Frère Jacques", "Twinkle, twinkle little star", "Happy Birthday" or "The wheels on the bus". Regarding the lullabies, it was mostly eared "Rock-a-bye Baby" and Johannes Brahms's "Wiegenlied: Guten Abend, gute Nacht" ["Lullaby: Good evening, good night"] Op. 49, No. 4 (c.a. 1868). Only two

mothers sang Portuguese lullabies. 27.8 % of the mothers did not follow the tendency of singing children's songs. In these cases, we heard mainly popular contemporary Portuguese songs and, in two cases, mothers sang melodies of religious songs.

In addition, we identified 10 mothers who performed an improvised singing, that is, mothers who did not sing pre-existing melodies. After a preliminary analysis of these improvisations, we concluded that, in general, the mothers sang more descending intervals, although the difference was not significant. In addition, they perform more ascending and descending intervals than unison (sing the same note), being a more melodic and less recited chant. Concerning the intervals, conjunct motion (the presence of major and minor second intervals) was more significant. Also significant is the absence of intervals greater than five halfnotes, making the range of these interpretations extremely short. Structurally these improvisations were very repetitive, usually featuring one or two very short melodic cells repeated throughout the interpretation. We also concluded that younger mothers and mothers with fewer education years improvised more, thus mothers with older babies sang more pre-existing songs.

Discussion

Based on the questionnaires, we observed a tendency for mothers to prefer to use the spoken word rather than singing, but the discrepancy between speaking and singing is more noticeable during distal contact (while the infant is in the incubator) than during the proximal contact of Kangaroo Care. Most mothers say that they prefer not to be silent during Kangaroo Care. Still, several mothers say they prefer to be in silence when they are with their babies. Regarding this last variable, it was not clear whether mothers understand silence as the absence of vocal interaction or the absence of characteristic noise from the Neonatal Intermediate Care Unit, such as medical equipment.

Although we have no data prior to this study on baby singing practices in Portugal, studies on time spent by mothers with their infants suggest

that it has been decreasing. The coverage rate of early childhood social responses (childcare and daycare) in Portugal has been growing between 2008 and 2015, and in 2018 the average number of weekly hours that Portuguese children under the age of 3 spend in educational institutions or early childhood care (39.1h) is among the highest in EU 28 countries, where a weekly average is 27.4h. It is possible that having less time with their children, mothers also spend less time singing to them and consequently less time learning, remembering, or practicing repertoire. (Castro, 2003; Esteve-Faubel, Esteve-Faubel, Cavia-Naya, & Benlloch, 2014; Grasina, 2017; Torres, 2018)

The data recollected in this study clearly shows that mothers prefer to sing pre-existent melodies rather than improvise. This may be related to the insecurity of mothers in using their own voice to sing and create melodies. Concerning the improvised chant, the participants perform a melodic and cantabile singing, mostly by conjunct motion, extremely repetitive, and within a short-range. On the one hand, these characteristics are common to children's songs and especially to lullabies (Abrantes, 2001) and may relate to an attempt to resemble the characteristics of this repertoire. On the other hand, it may relate to the use of a comfortable vocal register for a female voice without practice.

The repetitive structure is also an element often associated with children's songs and a recurring process in cases of improvisation and an aid to memory, which makes the repetitive musical structures common in several other improvised or oral tradition repertoires. According to Helena Rodrigues (2005), "the repetition strategy is recurrent in the interactions that the adult establishes with the child" (p. 67).

Regarding the pre-existing repertoire, we clearly see the use of children's songs, which becomes understandable since the participants are singing directly to a child. However, mothers prefer lullabies to play songs. Not only these musical genres are characteristically diverse and serve very different purposes (Bargiel, 2004; Trainor, 1996; Trehub & Schellenberg, 1995; Trehub et al., 1997), but babies also respond differently to these songs. According to

Creghton, De L'Etoile (2006) “states that infants are sophisticated listeners capable of detecting changes in musical stimuli and decoding their mother’s singing accordingly” (2011: 44). Therefore, the infant plays an extremely important role in the choice of the repertoire and its performance which, according to the author, is dictated by the child’s age, current state and response, thus acting as the conductor of maternal singing. The premature infants in a fragile state may have led to the choice of lullaby repertoire. Similarly, recourse to the religious repertoire may also relate to seeking emotional support and protection for the child in a time of weakness. Choosing religious chants is also an example of how maternal singing can already serve the purpose of enculturation and insertion in a certain community.

On the other hand, the repertoire chosen in the case of play songs and lullabies was mostly a highly mediated children’s repertoire (such as *Twinkle twinkle little star* or *Brahm’s Lullaby*), which can be heard on several children’s CD, musical toys and educational games, series and movies, acquiring the status of a canon for babies and children. Even the case of the two interpretations of Portuguese lullabies eared shows one traditional song and one song composed in the 60’s also extremely widespread on television and adapted by several mothers.

Given the scarce examples of traditional children’s repertoire, we can conclude that this is not the first resort mothers use when singing to their babies, giving grounds to the concern of some scholars about the loss of this repertoire. Nevertheless, in Portugal are reports of resorting to the most diverse repertoires while singing for infants: in Gil Vicente’s *Auto da Sibila Cassandra* (“Act of the Sibyl Cassandra”) a wet nurse lists the songs neither related to children’s songs repertoire that she can sing for the infants.

Conclusion

This study showed that these mothers tend to sing more adult songs and children’s mediated songs to their hospitalized babies than traditional Portuguese play songs or lullabies. It is possible that the sociological changes of a

family in Portugal, as well as the development of automatic reproduction devices that replace a mother’s voice, led to this fact. The characteristics in the improvised repertoire, which may be related to an attempt to please and calm the baby, were also common to a comfortable chant for a female voice without practice.

Through the analysis of the repertoire sung by the participants, we verify the popularity of certain lullabies and play songs and observe that the repertoire sung to babies revolves more in mediatized music than in the oral passage of traditional melodies which, according to Rodrigues (2005), “also mirrors a different social attitude of women towards motherhood” (p. 70). The study of these practices may offer a historical record of the social functions of motherhood and paternity. Furthermore, we find that these practices, even in conditions such as prematurity and neonatality, serve several functions, including the provision of care, bonding between mother and infant, and socializing the child. It also serves a purpose of enculturation by presenting the baby with a repository of songs that are part of the mother’s culture and, by which, introduces the child to a cultural, musical and in some cases, religious reality. These practices then provide what Doja (2014) refers to as “joyous transitions from the protected world of intimate songs to the wider world of interpersonal games and social relations, as well as particular rituals of a social community’s culture” (p. 140).

As previously referred, this study was limited by the short number of participants since it was a pilot study, thus not being possible to obtain a statistically relevant collection of data. The sample was recollected in a very specific environment, and it is not possible to generalize the results to a different community, such as mothers of term infants or mothers of older children. In the future, it would be interesting to extend this research to different communities and to focus, for example, on the paternal figure and mostly in the infant’s emotional and physiological response to these practices.

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The Relation Between Musical Activities, Attitudes, and Music Education of Pre-school Teachers

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Abstract

The importance of preschool for the development of musical abilities of children is proportionally increasing in accordance with the existence of various possibilities, such as stimulation of the creative potential of the child, the development of music education as an incentive asset in personal development. In the beginning, it is necessary to have a developed awareness of the educators about the existence of critical periods in the music development, then to introduce the child as a person and an individual psychological entity as well as to have adequate knowledge of music as the basic agent of musical development. The main goal of this research is to examine the relation between the frequency of realization of certain forms of musical activities in preschool groups and attitudes towards the importance of music in the life of preschool children, depending on the music education of educators and their self-evaluation of musical abilities. The research sample consists of 184 female educators, aged from 24 to 63 ($M = 43.15$; $SD = 9.96$) from which 93 said that they know how to play a musical instrument, whereas 92 said that they do not know how to play on any musical instrument. Participants' working experience ranged from 1 to 40 years ($M = 16.34$; $SD = 9.81$), where the majority have completed high school (68.6%) and college (17.8%). A questionnaire is designed for the purpose of this research, aiming to explore the issues related to the music interests of children, the perception of music, music activities, and basic data related to educators and working conditions of the institution. The survey was conducted in early March 2019. The assumed role of the importance of preschool teacher's music education for more successful work is partly confirmed. It is demonstrated that musical activities in a preschool are more frequent if educators evaluate their skills as advanced. The reason for this may lie in motivation, stemming from a feeling of personal competence, for the more frequent organization of these kinds of activities that lead to the formation of

a positive attitude, which is in accordance with the theoretical assumptions of this paper.

Introduction

Attendance periods for preschool groups coincide with an important developmental period of the child's cognitive, sensory, motor, and socio-emotional abilities. During this period, developmentally important changes are taking place, such as "an increase in game activity, an expansion of the development of symbolic functions and imagination and intuitive thinking. During this period, speech develops, plays form, internalization occurs" (Brković, 2011: 179).

It is often stated that the preschool age of the child is optimal for the development of musical abilities in children (Flohr & Hodges, 2006: 40–71; Flohr & Persellin, 2011: 3–22; Grujić-Garić, 2009). The importance of preschool for the development of musical abilities of children is proportionally increasing in accordance with the existence of various possibilities, such as stimulation of the creative potential of the child, the development of music education as an incentive asset in personal development (Bašić, 1987; Matic & Mirković-Radoš, 1986). In the beginning, it is necessary to have a developed awareness of the educators about the existence of critical periods in the music development, then to introduce the child as a person and an individual psychological entity as well as to have adequate knowledge of music as the basic agent of musical development (Nešić, Nešić, Milićević, & Todorović, 2006). However, recent findings suggest that the preschool period is optimal, not critical, for the development of musical abilities (Flohr & Hodges, 2006), which certainly does

not diminish the importance and indicate the need for continued work in this area. Numerous studies since the beginning of the last century have noted the positive effects of music education on the development of musical abilities in children, but also effects in other developmental fields (Sokolović-Ignjačević, 2019: 17–23). Thus, various studies have confirmed that attending such classes and programs can have positive effects on the development of vocal abilities (Demorest, Nichols, & Pfordresher, 2018; Svec, 2018), rhythm (Jordan-Decarbo & Galliford, 2011) and the ability to perceive music and discrimination (Cohrdes, Grolig, & Schroeder, 2018; Corrigan & Trainor, 2009; Morrongiello, Roes, & Donnelly, 1989), as well as their overall musical potential (Flohr, 1981).

Music education of pre-school teachers is one of the basic conditions for the successful implementation of educational programs within pre-school groups and pre-school activities. If a person possesses better knowledge in the field of music, we presume that he/she will be more successful in activities in the field of music (Nejgauz, 1970). In the pre-school programs, we most commonly distinguish two types: academic, subject-oriented, teacher-oriented programs aimed at preparing for school; and comprehensive, holistic programs aimed at the child, aiming at providing conditions for holistic child development through learning through personal initiative, supporting the free choice and expression of each child (Krnjaja & Pavlovic-Breneselović, 2014). It is thought that more simplicity and more freedom on the part of the teacher, who would take a holistic approach to the educational program, could offer more to the child and implement higher quality educational programs.

Study Aims

The subject of this research is to examine the relation between the frequency of realization of certain forms of musical activities in preschool groups and attitudes towards the importance of music in the life of preschool children, depending on the music education of educators and their self-evaluation of musical abilities. The

problem of research is based on the questions: is the frequency of certain forms of musical activities in kindergartens dependent on whether educators know/do not know how to play a musical instrument; is there a connection between the self-evaluation of the knowledge of playing on a musical instrument and singing with certain forms of musical activities, as well as attitudes towards the importance of music in the life of pre-school children.

Method

The research sample consists of 184 female educators, aged from 24 to 63 ($M = 43.15$; $SD = 9.96$) from which 93 said that they know to play a musical instrument, whereas 92 said that they do not know how to play on any musical instrument. Participants have been working experience from 1 to 40 years ($M = 16.34$; $SD = 9.81$), where the majority have completed high school (68.6%) and college (17.8%). A questionnaire is designed for the purpose of this research, aiming to explore the issues related to the music interests of children, the perception of music, music activities, and basic data related to educators and working conditions of the institution. The survey was conducted in early March 2019.

Results

Table 1 presents the basic descriptive statistical measures related to the research variables.

Educators who play a musical instrument have recognized that musical activities significantly help children in easier acquiring of knowledge in other areas of educational work ($t(181) = 1.829$, $p < .000$).

This attitude correlates with the self-evaluation of instrumental playing skills ($r = .168$, $p = .023$) and self-evaluation of singing skills ($r = .225$, $p = .002$), while singing skills correlate with assuming highly important role of music in the life of a preschool child ($r = .268$, $p < .000$). Correlation was obtained, between the preschool teachers' self-evaluation of singing skills and: the frequency of musical activities with children ($r = .172$, $p = .020$), musical accompaniment when children sing ($r = .195$, $p = .008$) and children's singing with rhythmic instruments accompa-

niment ($r = .243, p = .001$). Higher estimation of music instrument skills correlates only with more frequent child singing with musical accompaniment ($r = .176, p = .018$).

Table 1. Descriptive statistical measures of research variables.

Variable	Min	Max	M	SD
Knowing how to play an instrument	1.00	5.00	2.38	0.94
Knowing how to sing	1.00	5.00	3.49	0.93
Importance of music	3.00	5.00	4.54	0.54
Easier acquiring of new knowledge	1.00	5.00	4.09	0.64

The results of the regression analysis ($R^2 = .113, F(4,159) = 5.080, p = .001$) have shown that the positive attitudes towards the role of music in the life of a preschool child ($\beta = 0.201, t = 2.487, p = .01$) and the attitude that music helps children to acquire knowledge more easily in other areas of educational work ($\beta = 0.173, t = 2.152, p = .03$), were statistically significant predictors of a frequency of musical activity. The difference in the degrees of freedom shown, which differs from the total sample, is the result of missing answers.

Discussion

The study expected that there was a correlation between the frequency of realization of certain forms of music activities in preschool groups and attitudes towards the importance of music in the life of preschool children, depending on the music education of the teachers and their self-assessment of musical abilities.

The results confirmed the correlation that the attitude that music activities significantly help children in acquiring knowledge from other educational areas will be more positive for educators who have completed music education, i.e. for those who know how to play an instrument, which is also accompanied by the

higher self-assessment of playing and singing skills. Thus, this attitude may be the result of education and a higher appreciation of musical ability by educators. Such a result can be significant in the field of educator education, as it demonstrates a direct connection with the formation of a positive attitude towards children's music education.

Furthermore, self-assessment of singing skills has been shown to be related to the importance of the role of music in the life of a preschooler. It has also been confirmed that musicians of different types are more present in teachers with higher self-assessment of singing and playing skills. This again points to the conclusion that when educating educators for the job, it would be especially important to pay attention to developing their creative potential in musical terms, to support their vocal abilities, but also in general education in the direction of developing musical skills.

Although we cannot speak of causality, the links obtained make it quite clear that the preschool education of musicians can be important for two reasons: in forming an attitude towards the importance of music in the life of a preschool child, and for more frequent engaging in music activities, the benefits of which we have stated in the introductory part. The benefits of music education in this regard are more than obvious to educators and children alike.

Conclusion

The assumed role of the importance of preschool teacher's music education for more successful work is partly confirmed. It is demonstrated that musical activities in a preschool are more frequent if educators evaluated their skills as advanced. The reason for this may lie in motivation, stemming from a feeling of personal competence, for the more frequent organization of these kinds of activities that lead to the formation of a positive attitude, which is in accordance with the theoretical assumptions of this paper.

However, in future research, it would be advisable to include different types of assessment in relation to more objective indicators

of music education and music skills, instead of self-assessment, although the data obtained may serve as an excellent guide and basis for future research in this field.

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Music Perception and Cognition

The Power of Long Notes: Pedal Points, Drones, and Expectancy Theories

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Abstract

Pedal points and drones appear in music in a variety of ways, and they can have diverse effects on listeners. This paper outlines the ways in which expectations are built in the perception of long notes, as well as the ways in which this perception influences perceptions of other musical parameters. As a conceptual frame, I have considered the writings of Elizabeth H. Margulis (2005) and David Lewin (1986). The perspective of expectancy theories proves to be fruitful for exploring the differences in the effects of long notes. The expectancy rate seems to be one of the most influential parameters in the perception of long tones (another is their sonority). A pedal point with a high expectancy rate can even vanish into inaudibility (or just be implied) while simultaneously maintaining tension. A pedal point with a low expectancy rate might be perceived as a layer in the overall texture, as a drone. The current paper offers a new definition of harmonic pedal point and drone, as well as a new terminology to refer to their subtypes.

Introduction

Long notes – called pedal points, organ points, drones, or bourdons – exist in all musical genres and styles, including folk music on all continents.¹ Long notes are broadly described as *sustained sound*. Although there is no strict differentiation between the terms *pedal* (or pedal point) and *drone*, nor there are clear definitions, the former is often used in the context of western art music, whereas the latter is typically employed in the context of non-western music or western folk music.

Despite the similarity in their appearance in the score, pedals (drones) can sound in a

variety of ways – including being (almost) silent. Compare, for example, the “folk drones” of Beethoven’s *Pastoral Symphony* to the tonic pedal under the fugue of Brahms’ *A German Requiem*, or the rhythmic pedal of Chopin’s mazurkas to the dominant pedal just before the recapitulation of a classical sonata-allegro form. Aside from differences in their sound, and in their function and place in music, these long notes can have very different effects on listeners. Some can build enormous tension, while others can provide stability.

This variety is not reflected in the way in which long notes are mentioned in the analysis of a musical piece. Usually, a long note is described by noting its pitch, duration, and harmonic function (if the harmonic language is tonal-functional). I believe that this discrepancy is a consequence of not having an appropriate terminology that could help articulate and distinguish among the many affective aspects of long notes.

The aim of the current research was to explain the perceptual differences between many instances of pedals (drones) and thereby provide insights and terminology that can be applied in music analysis. As a conceptual frame, I have applied expectancy theories, especially those of David Lewin (1986) and Elizabeth Margulis (2005). This perspective was fruitful as it helped to answer my main question: Why are some pedal tones so exciting, while others do not exhibit this quality at all?

Conceptual Frame

At the core of expectancy theories is the idea that musical sounds acquire meaning when they refer to, are connected with, or indicate other

¹ In the Garland Encyclopedia of World Music (Nettl, Stone, Porter, & Rice, 1998), all of the volumes (world regions) include music with drones.

musical sounds. This relationship between tones is perceived in the musical ears of the listener. When listening to music of a style with which one is acquainted, the listener groups the single tones and understands them as forming various patterns. Once the listener has recognized these patterns (as they are unfolding), expectations are created regarding subsequent tones on the basis of this recognition (i.e., the listener expects the pattern to continue). Some expectations are based on certain general laws, such as the *law of good continuation* or the *law of Prägnanz* (Meyer, 1956), or on principles such as the expectation of stability (e.g., of key) or the expectation that the next melodic interval will follow a certain direction (Margulis, 2005). Other expectations are a product of one's acquaintance with the aesthetics of the style. These different-level expectations are combined and work according to certain "hierarchic rules" (Margulis, 2005).² The current study claims that the power of certain pedal tones is derived from the listener's expectation of a resolution. This power is present even when we know that the pedal tone will be resolved only several beats later.

In his legendary book, *Emotions and Meaning in Music*, Leonard Meyer (1956) primarily focused on expectations based on the knowledge of stylistic norms. According to his theory, emotions are aroused when these expectations are not met, i.e., when music deviates from the usual procedures. In her theory, Elizabeth Margulis (2005) emphasized the types of tension that are aroused as a consequence of expectations and their denial. Although her research was specifically related to pitch, the theoretical model she developed is applicable to other musical parameters as well. Margulis defined three types of tension. *Surprise-tension* refers to the "tension deriving from unexpectedness [and] registers not as a conscious experience

of shock, but rather as a subtle experience of intensity and dynamism. It motivates closer attention from the listener" (Margulis, 2005: 693). *Denial-tension* "correlates directly with implicative denial. High denial-tension creates a sense of will, intention, or determinedness" (Margulis, 2005: 693). "Denial" here refers to situations in which a non-expected element (Margulis refers to pitch) appears instead of an expected one. Lastly, "a third tension type, expectancy-tension, pertains not to the degree to which an event satisfies or denies expectations created by preceding events, but to the strength of expectation generated by an event about future ones . . . Events that trigger strong expectations generate high expectancy-tension, but events that generate mild expectations generate low expectancy-tension. Expectancy-tension creates an impression of strain and desire in a melody" (Margulis, 2005: 694–695). As we shall see, the current study drew on this categorization to suggest that expectancy-tension is the main factor in the experience of harmonic pedal tones.

David Lewin (1986) developed a model of perception based on four parameters: event, context, expectations, and theoretical language. Musical stimuli (events) are always (musically) understood in a certain context (related to a motif, progression, sonority, style, etc.). Any musical event can be seen in a variety of contexts; however, in each context, the meaning of the event will be different. The relation between the event and the context incites expectations about consequent events. Any event is thus related to both previous events and anticipated future events. Past expectations are integrated in perceptions of any event: any event could be that what was expected (confirmation of expectations) or it can be different from what was expected (denial). Any relation between events is constituted through "language". "Language" contains known concepts and patterns. Lewin defined "language" as a list of statements that one can make about a particular event. In the current research, for example, a long tone in the bass can be recognized as the dominant (involves a context in which we know which tone is the tonic) or as the goal of the harmonic

² There are also expectations based on one's acquaintance with a particular musical piece. Expecting a particular melodic movement (or another musical event)—because we know how it will sound—can conflict with our schematic expectations related to that same event. Margulis (2005) suggested that this conflict can explain the affective quality of certain melodic progressions (even in well-known pieces).

progression (involves understanding the bass line as a particular pattern), or it can be recognized as the pedal point (involves a context in which its harmonic function is not shared with the other voices). Language makes it possible to perceive an event as an instance of any of the known concepts.

Expectancy, as an idea, is already present, implicitly or explicitly, in music analysis, especially in the analysis of musical form. Whenever the perception of music is considered being significant in music analysis, the listener's expectations (in this case, the analyst is herself the listener) guide the analytical process. What one expects to hear can tell us a lot about how one understands a particular phrase, fragment, or whole piece (i.e., in which *context* the listener understands the musical events being heard). Experiential knowledge of stylistic norms here represents an important factor because the listener is constantly recognizing the musical patterns she already knows (*the language*). All the current events are understood in the light of the supposed pattern, which in turn triggers expectations of the consequent events. When it turns out that the consequent events do not confirm one's assumptions (i.e., refutes the listener's "reading" of the musical events), new assumptions are made. Theorists like Janet Schmalfeldt and Hepokoski and Darcy demonstrated the variety of ways in which late eighteenth- and early nineteenth-century composers played with formal conventions (deceiving listeners' expectations). Schmalfeldt (2011) showed how elements of form can change their role and become something else in the structure – as such, form is *in the process of becoming*. James Hepokoski and Warren Darcy (2006) placed emphasis on a *dialogue* between any current piece and other pieces. An individual piece of music is in dialogue with generic norms and expectations (this happens in the minds of the composer and also in the musical ears of the listener). The current essay proposes a similar view concerning listeners' understandings of any long note: As a particular pattern, a long note is heard "through a dialogue" with known pedal points and drones (from any known style, in general, and from any

known piece, in particular). Through the process of generalization, a listener's aural vocabulary is constantly being enriched and refined.

Pedals (Drones) Through the Perspective of Expectancy Theories

Traditional textbooks on the subject of harmony teach us that a pedal point is a non-chord tone, and is thus dissonant; as such, it will ultimately be resolved. Sometimes, however, the listener might feel that the harmonies above it are dissonant. Music analysis embraces both interpretations. For example, in a musical piece with a pedal tone in the inner voices (such as in Mozart's piano sonata KV 331/i), harmony is often analyzed independently from the pedal tone, with the suggestion that a pedal tone is that which is dissonant (or does not belong). Yet, more often, we encounter the opposite situation – for example, when the tonic or the dominant pitch in the bass is sustained, and the harmony is analyzed as the "prolongation" of the tonic or the dominant. The whole progression is then considered to represent one harmonic function (I or V), and the chords above the bass that do not share the same function are considered to be dissonant.³

The term *dissonance* does not necessarily refer to dissonant intervals. Živković (1996) indirectly explained the *dissonant nature* of the pedal point: "Even when pedal tone belongs to the harmony of the upper voices, it does not follow their movement, but rather awaits the resolution of the harmonic progression that has digressed from the pedal-foundation and will (in most cases) return to it" (p. 220).

In any of the mentioned cases, the involvement of a pedal point is considered to be a deviation of some kind, a deviation that is temporary and could thus be expected to end at some point. The following image (Figure 1) depicts a typical pedal point in a tonal piece with functional harmony.

³ Koslovsky (2012) pointed to the significance of the pedal point as a form-generating and framing device, and consequently, to the necessity of paying more attention to this musical element in (the teaching of) music analysis.

Figure 1. W.A. Mozart, *Clarinet quintet KV 581/i*.

The harmony in mm.109–110 prepares the arrival of the E-Major chord in m.111. From this moment, until m.118, the bass tone E is repeated on each downbeat. The harmonic space divides into two harmonic layers: a repeated bass tone that prolongs the dominant harmony, and the harmonic progression above, moving away from this harmony. The two harmonic layers are competitive. This splitting can be perceived as a deviation in texture, and also as harmonic dissonance, one which would be expected to ultimately be resolved. In this case, there is a departure from a stable harmonic point, and there could also be the expectation of a return to this point.

An experienced listener will mentally tie all the downbeats into a prolonged E and will recognize a pedal point within it – as this musical event is quite common in tonal music (we have it in our *language*). Moreover, this event is accompanied by a procedure, one that is expected by the listener and which is built on stylistic norms. In this case, the procedure comprises three stages: (1) the harmony and the bass will reunite at a structurally significant point; (2) after this reunion, the pedal tone will be terminated; finally, (3) the tonic chord will follow – because after the prolonged dominant, the tonic chord is felt like the final resolution. The recognition of the repeated tone “E” as a harmonic event, one that we call the pedal point, is accompanied by all three expectations at the same time, as a complete procedure, unfolding in stages. The final goal is an A-major chord, the tonic (m.118). Its arrival is prepared but at the same time delayed by this pedal point. There is

no existing rule to tell the listener how long a pedal tone will be. Still, as harmony and form are closely related in this musical style, we very often have a feeling that the pedal tone could end in a particular measure – whereas in another measure, probably not. In this example, harmonic rhythm above the pedal tone accelerates, as compared to the preceding bars. The harmony and the bass are reunited several times. A sense for proportions could tell the listener that the pedal tone will not end on the first such occasion, in m.113; the next possibility, in m.115, is more plausible. As David Huron (2006: 9) explained, preparing for an expected event typically involves both motor preparation (arousal) and perceptual preparation (attention). The listener is prepared for the expected events, but as she does not know when exactly it will happen, the arousal and the attention are maintained. Throughout the pedal fragment, the listener experiences expectancy-tension.

There is yet another expectation, related to the same pedal point, that an experienced listener can have: knowing that one is in the development section of a classical sonata, it could be expected that, after this pedal, the recapitulation will follow. The dominant pedal point often announces important thematic material: the return of the main theme or the arrival of the second theme.

As we have seen, the expectation itself raises expectancy-tension. This tension is stronger when the expectation is more direct – when we know exactly *what* to expect and *when* the expected event will most likely occur. If the expected resolution is delayed, then the pedal point can feel even more powerful because of the denial-tension and the sense of determinedness that it can incite. However, too much delay can have quite the opposite effect: it could weaken the form of the pattern and as such weaken the expectations. Take, for example, Bach’s *Prelude in C*.

After a long predominant area, the cadential dominant arrives in m.24. Instead of the expected resolution to the tonic, the dominant is prolonged by the pedal point above which the tonic chord sounds. After the initial surprise, the listener will recognize the dominant pedal and

Figure 2. J. S. Bach, *Prelude in C, WTC I*.

will likely expect the unification of the pedal tone and the harmony in m.26, as well as the termination of the pedal tone in m.27. In this scenario, the tonic chord in m.25 is understood as a neighboring chord. However, the resolution of the harmony is realized in two steps (first, the 6th moves to the 7th, and only then is the 4th resolved in the 3rd). This small delay of the final dominant is understood as an extension of the assumed harmonic pattern, i.e., as an element meant to put even more weight on the dominant resolution (end of the pedal) and thereby also place more emphasis on the expected post-pedal resolution into the tonic in m.28. When the expected dominant indeed arrives in m.27, as a confirmation of the expectation, the belief in the tonic's arrival (and the termination of the pedal point) in m.28 is high. However, the pedal point is still present, and instead of the tonic, there exists above it a dissonant harmony. The listener will be surprised by this prolongation and will most certainly experience an emotional response due to a large contrast between the expected and the outcome.⁴ From this point, two different scenarios could be expected. In the first, the listener will focus on the new denial and the new extension, will be able to perceive the surprising moment as part of the pattern and will believe that, this time, the procedure will be executed. The denial-tension amplifies the expectancy-tension. The second possibility is the converse of the first: the listener's expectations will decrease in intensity because it will seem as though she cannot make accurate predictions very well. The shape

⁴ Huron (2006) wrote that "the magnitude of the emotional response is amplified when there is a large contrast between predicted and actual outcome" (p. 22).

of the harmonic pattern might feel less "good", and thus less predictable. It might even feel like this pedal is "too long".

High versus Low *Pedal-ness*

As we have seen, the level of expectation involved in the perception of a long tone is closely related to the tension that this long tone arouses. Introducing a parameter that indicates the level of expectancy-tension could provide the means to better describe any long tone in a piece. I suggest introducing the parameter of *pedal-ness* for this purpose. Harmonic pedal points, especially those on the dominant, usually have a high *pedal-ness* rate.

Not all of the long notes incite expectations. This is mostly due to the musical style and the patterns that the listener associates with it. Take, for example, bagpipe music. Long accompanying notes are inherent to this instrument; these drones provide its characteristic sound. They are not a "deviation that comes with a procedure", but rather a stable ingredient of bagpipe music. The listener does not expect them to stop.⁵

The drone could be felt to be an anchor, one to which the melody will always return. In some sense, such a drone is a physical representation of the tonic.⁶ A similar effect can be "artificially" created to, for example, centralize an otherwise neutral tone collection, such as a whole-tone or 12-tone scale (e.g., Debussy's *Voiles* or Webern's String quartet Op. 5, No. 3). These drones (in western art music, we usually label any kind

⁵ McCullough (1977) explored traditional Irish music and concluded that in fiddle music, the players are distinguished and praised or comment mostly on the sound. The use of drones (next to, e.g., a bowing technique) is considered to be one of the elements of sound. Thus, sustained tones are not perceived as a tension that must be resolved, but rather as an element contributing to the overall sound.

⁶ In traditional Indian music, a drone is an essential element. "It is the drone which functions to unambiguously establish the tonic. The continuous sounding of one or more notes provides the harmonic base for the performance. This not only clarifies the scale structure, but actually makes it possible to develop amazingly complex modes" (Jairazbhoy, as cited in Courtney & Courtney, 2019).

of persistent tones as pedal points) are not implicative and do not incite any particular expectations. One composition that is often referred to as “the drone piece of classical music” is the prelude for Wagner’s *Das Rheingold*. The perfect 5th, Eb-Bb, is held in the low register for 113 bars. While it is harmonically consonant, it opposes the other events (the whole network of nature-motif imitations) by its immobility, by its firmness. The most dynamic parameter is the texture, and the drone stands out as a low textural layer. In the 1970s, drones were especially loved. On the one side, this was inspired by Indian music (e.g., Charlemagne Palestine); on the other, by the possibilities of the electronic studio (e.g., Ligeti).

Long notes in drone music have very different effects from harmonic pedals. In the comparison of these two extreme cases, we can arrive at a clear differentiation between and definition of at least two categories: implicative pedal points and non-implicative drones. A pedal point could be seen as a harmonic event that arouses certain expectations. One of its parameters is its pedal-ness – that is, the measure of expectancy-tension that it arouses. A drone can be defined as a textural layer with low pedal-ness. Its most important parameter is its sound. Through these definitions, we can easily understand the workings of an implied pedal point (e.g., a long note on a harpsichord that has vanished into inaudibility, or a sudden rest in the bass line). Although there is no sound, we still feel the presence of such pedal points in the expectancy-tension that grows. The extreme case of this is a concerto cadenza, which is often placed near the end of the movement, in the middle of a very important cadence, between the cadential 6/4 chord and its resolution into V (followed by the final, tonic chord, and a closing section played by the orchestra). The resolution of the implicative cadential 6/4 chord is denied, but the listener knows that the orchestra will at some point pick up from where they have stopped playing. The dominant in the bass thus continues to exist as an implied pedal point, one that will follow the procedure for the harmonic pedal.

Pedal/Drone Types

In the foregoing discussion, we have observed the ways in which expectations are formed in the perception of long notes. We have seen that through this perspective, it is possible to distinguish between two major categories: low-implicative drones, as sounding musical layers; and high-implicative pedal points, as harmonic events. Drones will have, as their main parameter, sonority. Pedals will have, as their main parameters, harmonic function and expectancy rate (pedal-ness).

This perspective provides us with the tools to approach the analysis of long notes. However, as it immediately becomes clear, most long notes will have, to a certain extent, characteristics of both pedal points and drones – as I have defined them. Most long notes, whether pedals or drones, will actually sound, and will as such add to the overall texture and sonority of the music. Similarly, even in music not based on functional harmony, many long notes will project at least some kind of tension related to the other voices, the tension that will increase or decrease as the other voices move away or toward it. This fluctuation of tension could result in expectations of a “consonant” moment (of any kind). As a result, any long note will probably possess both pedal-ness and drone-ness to a certain extent.

Still, one of the two parameters is usually more prominent than the other. For “western ears”, which are accustomed to music based on functional harmony, it is probable that a long note is first “checked” concerning its pedal-ness. If its pedal-ness is low, the long note will be understood as a drone. The significance of the sonorous qualities of a long note will be greater when the harmonic implications are lower. This means that expectancy-tension represents a parameter whereupon we can decide whether a long note is a pedal or a drone.

Within these two categories, we can discern and define a number of types. For example, a *metrical pedal* in Beethoven’s *Ländler No. 5* (from *Sieben Ländler WoO.11*): its pedal-ness is certainly not low – still, if we were to tie all its bass notes into one long note, we would see that its main effect disappears. A metrical pedal provides the downbeat to dance. Thus, although

this pedal point could be categorized simply as a harmonic pedal on the dominant (its pedalness is perceivable; the listener expects it to be resolved at a structurally significant moment), labeling it (also) as a *metrical pedal* says more about its character and function.⁷



Figure 3. L. v. Beethoven, *Ländler No. 5. WoO.11.*

Similar to this, a *rhythmic pedal* (usually in the inner voices), such as the one in Chopin's *Raindrop* prelude or in Schubert's *Die liebe Farben*, provides a steady pulse (next to the pitch). The *pedal-ness* of such pedal tones is low, which, to a certain extent, has to do with the fact that they are consonant with the harmony throughout nearly the whole piece (as if the whole piece is composed around them). More importantly, being in the middle of the texture, these tones do not have the same harmonic power as the bass tones have. They are essential for the character of the music, but their effect is different than the effect of harmonic pedals. Perceiving a repeated, consonant pitch still as a pedal tone is the result of the persistence of this voice, against the free movement of the other voices, in the context of style in which such treatment is not the norm. There could be an expectation that its repetition will stop at a structurally significant point. In this case, it would not mean a harmonic resolution, but rather a "textural resolution". This pedal type requires more investigation, as its omnipresence could also be perceived as a drone.

⁷ In the chapter on saturation in music, Meyer (1956) wrote about ostinato: "The listener understands that the function of the pattern is to establish a continuous and repeated ground against which other, more clearly articulated figures are to be projected" (p. 137). Applying these thoughts to a *metrical pedal*, we could expect that experienced listeners will not listen to this pedal point in the same way as they listen to another type of harmonic pedal.

In the category of *harmonic pedal* (the "default" type of pedal point in western art music), we can discern several distinct subtypes: *opening dominant pedal* or *announcement pedal* (e.g., Chopin's *Grande Valse Brillante* Op. 18), *opening tonic pedal* (e.g., Brahms Op. 60/i), *closing tonic pedal* (many of Bach's fugues), and *sectional dominant pedal* (often in Classical minuets).⁸ Each of these subtypes is accompanied by a particular procedure, and thus each is associated with specific expectations. For example, when the first completed period (or phrase) of a musical piece is followed by new material above the dominant pedal, the listener might understand the pedal point as a *sectional pedal*, which suggests a rounded structure (e.g., *aba'*) and projects an expectation of the return of the opening phrase after the pedal section. Such is the case in Mozart's quartet KV 421, where the dominant pedal in mm.9–12 suggests that the first phrase is in a small ternary form, although a return of the opening phrase is ultimately denied.

As another example, if a piece begins with the relatively fast repetition of a single pitch, the listener might assume that this is an *announcement pedal*, which implies understanding this pitch as the dominant and projecting an expectation of the tonic a perfect fourth above.⁹

Opening tonic pedal suspends the flow of the phrase. The other voices are moving but cannot go far, as the pedal tone pulls them back to the beginning. The experienced listener knows that this is a temporary state, that the pedal tone will let the bass move on, thus releasing the harmonic flow. This will not happen at an arbitrary moment: usually, the pedal will give way to the cadence (often half cadence), or it will stop to mark the half of the phrase. The expectation that such a pedal tone will stop is especially obvious in a piece in which this does not happen. In Bach's *Tocatta in F major*, BWV 540, the

⁸ For more details, see Vujović (2017).

⁹ When hearing just one pitch, listeners will most easily be able to imagine it being the tonic, and slightly less easily the dominant (Huron, 2006: 65). While, in general, the chance is slightly greater that a single tone will be perceived as the tonic, in the case of recognizing an announcement pedal, listeners will assume it is the dominant.

structural groupings and the harmonic progression likely incite an expectation that the opening pedal will be terminated on the downbeat of m.9. When this does not happen, the expectation-tension will transform into denial-tension and a new expectation-tension, which will in time decrease, before the pedal point turns into a foundational drone.

Pedal/Drone Implications

We have seen that understanding a long note as a particular type of pedal point or drone usually projects certain expectations related to the other musical events in the piece. Mistaken judgments, in this case, will have some implications. Let me illustrate this with two examples.

1. A pedal point in tonal music is, in most cases, either the tonic or the dominant. This is especially true in the case of harmonic pedal points in the bass. These two types (and their subtypes) are a part of the “language” of most listeners that are acquainted with western art music. While there are musical pieces featuring the pedal point on the mediant, and even on other scale degrees, it seems that these do not promote their own harmony, one that could compete with the harmony of the other voices. The conflict is thus not so much in the domain of harmonic function as it is in the domain of sonority. In any case, harmonic pedal points on a pitch other than the tonic or the dominant seem to not have been conceptualized, and they are thus not a part of the “language” as distinct items. Since there is no specific procedure associated with such a pedal point (like that another, particular pitch will follow, or that the pedal tone will stop at a particular moment), there are no strong expectations related to it. When something other than the tonic or the dominant pitch is sustained in the bass, the listener has the following options: (a) classifying it as one of the known two types (meaning assuming that it is nevertheless the tonic or the dominant), (b) understanding it as one of the drone types (for example, a textural drone, which implies a devaluation of its harmonic influence), or (c) ignoring it as a strange element without obvious meaning

in the context of the piece (it turns into a kind of independent sound or even just a noise).

In Tchaikovsky’s 6th symphony, 2nd mvm, the musical ears of the listener meet such a challenge. The first (compound) part is in D Major and finishes on the tonic chord. The bass tone D is thereafter prolonged; in the second part, it remains as the pedal point. But this section is now in B-minor. It is exactly the pedal point that blurs the new key, and it might take a couple of seconds before the listener realizes that it is no longer the tonic. The real tonic wins the competition, and when it does, the pedal tone remains without a clear identity, thereby losing its harmonic power. There is no established procedure for mediant pedal points, and thus there is no clear scenario about which one could have expectations. The rhythmic pulsation of the D continues to sound, coloring the B-minor tonic with a bit of “relative-major-ness”. Deprived of its implicativeness as a harmonic pedal, it turns into a textural layer, a drone. Its rhythmic property adds to its own texture—but at the same time, it also adds to the character of the whole section.

2. The last section of the 3rd movement of Brahms’ *A German Requiem* is a fugue. The chance that its wholeness will not be perceived is great, meaning that the listener will miss the beginning of the fugue. The misleading factor, in this case, is the tonic pedal point under it. Just before the fugue, the previous section closes with a rather strong dominant pedal and an authentic cadence. The expectation-tension was high, especially because of the delayed resolution of the cadence. The final tonic is prolonged by means of a tonic pedal. This situation is common for the ending of a tonal piece. The pedal point is then recognized as the *closing tonic pedal*, and in such cases, there are usually a couple of codettas, or perhaps a small coda, above. Whichever of the two, we are actually already at the end, and the pedal point will provide the time and (harmonic) space to load out the energy of the dominant pedal. In the Requiem, the listener will probably do exactly that: exhale and relax. And so, she will miss the beginning of the fugue. This is because what she thought would be the end is actually the beginning of a

new part. When the piece has not ended after several bars, the listener will again focus attention and realize that it is a fugue. Thereafter, the pedal point (sounding throughout!) will change its identity several times, from being the tonic pedal point to being the dominant to even being a textural drone (when the music modulates to the dominant key).

Conclusion

Investigating the world of pedal points and drones through expectancy theories has led us to their differentiation into two distinct groups: those that arouse more or less strong expectations, and those that do not. The first group is populated by pedal points, with their main representative being a harmonic pedal point on the tonic or the dominant, in the bass. The second group is populated by various textural drones, with their main representative being long notes in music featuring non-functional harmony and long notes in music where the pitch is not the main parameter. Although the harmonic language of a musical piece is the context that essentially contributes to the perception of its long notes, it is possible to experience a non-implicative drone in tonal music as well; and in general, to recognize a pedal/drone pattern that is “borrowed” from another musical style. The indicator of one’s musical “reading” or understanding of the music is her expectation of the consequent musical events. Expecting a long note to resolve at a certain moment means that the listener understands it as a type of pedal point. Having no expectations related to a prolonged note in a tonal piece means that the listener does *not* understand it as a pedal point. This opinion differs from the usual view on pedal points and drones, a view which considers them to be one and the same musical element, with the former belonging to the context of western art music, and the latter belonging to the context of non-western music and western folk music. From the perspective of this research, pedal points and drones are different concepts, both of which can be perceived in western art music as well as in other musical styles and genres as *distinct* types.

Besides by their *pedal-ness*, the character of long notes is formed also by their other properties, such as their rhythm, the register or the texture of the music. In this sense, the realm of long notes differentiates yet further into discernable sub-types of pedal point and drone. Some of the expectations that they incite are shared across the group; other expectations are specific and often relate to musical structure. A kind of “proof” that these sub-types actually do exist in one’s musical ears, emerges in situations when the listener recognizes a particular pattern in a piece that does not feature it at all (we consider the pattern being *implied*). Starting from this “recognition”, a logical next step is matching the analytical language with the aural “language”. Although, luckily, music always escapes categorizations, having these categories could help develop a better understanding of the exciting phenomenon of long notes.

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Methodological Difficulties in Conservation-Type Tasks in Music

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Abstract

The main aim of this work was to review methodological difficulties that arise while designing and administrating music conservation-type tasks, thus contribute to the expansion and redefinition of theoretical constructs. Another aim was to present the results of the pilot study, in order to extract potential means for problems-solving and to point out to the remaining difficulties. Music conservation represents the ability to perceive unchanged attributes of the music as same, despite the change in another attribute. The analogy of cognitive and music conservation and development remains questionable. Results have shown that the efficiency of music conservation increases with age, and tonal models conserve before rhythmic. Numerous critics followed, which could be arranged into three categories: 1. Before (task selection, stimuli, sample); 2. During (test procedure, additional material) and 3. After (data analysis, interpretation) data collection. Within the mentioned pilot study following methodological problems were considered: duration, sole auditory domain, terminology adjustment to the age, aspects of music that can be compared with Piaget's (melody, rhythm, meter), and unfamiliarity with the stimuli. Contradictory results were obtained, and the assumption is that they were caused by methodological difficulties. Based on what was said above, guidelines for improvement were proposed. Recently there has been no significant research in this field. Therefore, mentioned critiques should be considered and *methodologically more correct* tasks designed. The significance of this research is reflected in the contribution to the validation of conservation-type tasks, and a better understanding of musical development.

Introduction

The reason for naming these music tasks conservation-type tasks is the fact that they significantly differ from Piaget's, for they are in the auditory domain, provide mediate insight into the change and have no obvious compensation and reversibility. There is also a question of the

relevance of the aspects changed, such as one specific note in regard to the amount of water. The conservation in music represents the ability to perceive unchanged attributes of the music as same, despite the change in another attribute (Radoš, 2010). The pioneer in this research was Marilyn Pflederer-Zimmerman (Pflederer, 1964, 1966, 1967; Pflederer-Zimmerman, 1986). She abstracted five conservation laws: *identity, metrical groupings, augmentation and diminution, transposition, and inversion*. Results showed that older children are more successful in solving tasks, also visual tasks were much easier to solve, and that tonal model conserved before rhythmic, but rhythmic before metric. Also, the critical period for the development was placed between 5 and 7 years and ends between 9 and 10. Numerous critiques followed. Hildebrandt (1987) noted that the relationship between two certain aspects of music is not necessarily causal, as height and width are for the glasses of water. On the other hand, Serafine (1975) criticized small samples, mediate insight into the change, and a problem of the analogy with Piaget's conservation tasks. Other critiques concerned the fact that correlation does not imply causation. Authors also did not consider potential poor hearing and memory capacities of young children, who might not understand the task and instruction, nor the age and attention problems. It is important to be aware of the duration of the echoic sensory memory and keep recordings as short as possible. Darwin, Turvey, and Crowder have found that this memory lasts about four seconds (according to Kostić, 2014). It is also essential to work on linguistic and affective factors (Pflederer-Zimmerman & Sechrest, 1970), as well as on the relationship between Piaget's and music conservation (Botvin, 1974, according to Pflederer-Zimmerman, 1986).

Aims of the Study

The main aim of this study is to review most of the methodological difficulties that exist and/or are about to occur, especially those that have the actual potential to be solved.

Another aim is to present the methodological difficulties that derived from the pilot study in which some of the criticisms have been exceeded (Vuletić & Jegdić, 2017), in order to improve the latter conservation-type tasks.

The Arrangement of the Methodological Difficulties

Mentioned difficulties could be arranged according to the established stages of the research (Todorović, 1998). Thus, the problems are divided into the following categories: before data collection (task selection, stimuli, sample), during data collection (test procedure, additional material), after data collection (data analysis, interpretation). This arrangement was additionally created in order to make the topic more transparent and the discussion of the difficulties systematic.

Pilot Study

This research was conducted in 2017 (Vuletić & Jegdić, 2017), with the aim to contribute to the development of a new, simpler, and methodologically more precise battery of tasks.

Participants

The sample included 19 children. Nine of them were age five (five boys, four girls), and ten were age seven (four boys, six girls). The testing was conducted in one kindergarten and one elementary school in Belgrade. All the children that were age seven already had the conservation defined by Piaget, and none of the children that were age 5 had this conservation.

The Tasks

Piaget's tasks in Serbian language (Ivić, Ignjatović-Savić, & Rosandić, 1989). The first six tasks from Piaget's battery, which all concern the amount of matter (these tasks are more similar to music conservation-type tasks), were

used in order to determine if children do or do not have established the cognitive ability of conservation, defined by Jean Piaget.

Music battery (Vuletić & Jegdić, 2017). As for music conservation-type tasks, six of them were designed for this pilot study. These tasks included every combination of one aspect being held constant, while the other one of the remaining aspects changes. Of all the numerous aspects of music, essential had to be chosen to create a simpler draught of the research. Meter, rhythm, and melody proved to be crucial aspects (Bartholomew, 1987), especially because it is possible to apply the logic of Piaget's tasks to them (Radoš, 2010). A few examples of the stimuli are shown in the figure below.



Figure 1. Examples of the tasks: 1) Basic task; 2) The same melody as in the basic task, but rhythm changed; 3) The same melody as in task 2, but meter changed.

Stimuli. Everything was recorded on the professional synthesizer. Meter was highlighted by always pressing the c1 (261.63Hz) note in accordance with beats, and punctuating every first c1 in the bar, depending on the 3/4 or 2/4 measure. The rhythm was highlighted by recorded clapping along, and melody by the artificial female vocal singing vowel “ah”.

The instruction. Children were told to listen carefully to two recordings and pay attention to one aspect (Bartholomew, 1987). Then they were asked whether that aspect remained the same in both recordings and if they could provide an additional explanation of what changed, to exclude: guessing, suggestiveness, and the deception of the previous answers.

The results. All the groups differ significantly $\chi^2(2) = 14.989$ (*Cramer's V* = .888, $p = .001$), and there are no gender differences, although

the sample was small. The number of completed musical tasks increases with age, except for meter. Rhythmic models conserve before tonal, not the other way around. The metric tasks seem easier for younger children, and Piaget's, and musical cognitive developments are not parallel.

Implemented changes. When it comes to *task selection*, the transformation, compensation, and reversibility were included, as well as the essential aspects of music – rhythm, meter, melody. As for *the nature of the stimuli*, the melody was completely new and simplified, which is considered an important factor for these types of tasks (Hargreaves, Castell, & Crowther, 1986). The *duration* of the stimuli has been shortened on four seconds, which is the echoic sensory memory upper range limit (Kostić, 2014). One of the crucial points was to be careful not to mix the *domains*, hence exclusively auditory one was used. When it comes to testing *procedure*, it was important to adjust the terminology to the age of the children, so the words such as clock beating, clapping, and singing were applied. The *affectivity* was controlled indirectly by securing the unfamiliarity with the melody. Of *additional materials*, both headphones and speakers were used, depending on the children's concentration. The *age of the sample* was the same as in Piaget's studies, so the comparison of the conservations was possible. The only significant aspects that weren't controlled in this research were *talent and experience* (Vuletić & Jegdić, 2017).

Discussion of the Methodology

Before data collection. There are three important aspects of this section that should be discussed. The first is *task selection*. Melody, rhythm, and meter were introduced as crucial aspects of a musical piece. Nevertheless, other aspects, such as dynamics, tempo, harmony, instruments, etc., should also be included and examined in a way that reflects the principles and laws of Piaget's conservation. The other difficulty within task selection is the notion that these tasks are still possibly hard for young children, so the aim should be to make them more transparent and obvious. Additionally, tasks shouldn't be familiar to the children, because in

that case, some children are predestined to solve them better. What could be done, for example, is to make completely new stimuli one week before testing music conservation, then play it to the children once a day for the whole week. When it comes to *stimuli*, there are also some recommendations. Primary, the duration must somehow be under 4 seconds, and it is most certainly the main change that should be made, especially when participants are this young. The stimuli should be as distinctive as possible, at least like in the mentioned pilot study. Additionally, the meter was not highlighted properly with the c1 note, hence the harmony was probably unintentionally introduced. This is problematic not only because certain aspects of the melody may sound dissonant, but because harmony is a new uncontrolled variable. The recommendation is to use a metronome that produces vague sound, but still punctuates every first beat in the bar. As for the *sample*, it is very important, but challenging, to control the previous experience and talent. The one idea or suggestion is to conduct longitudinal research. This way it would be possible to follow, not only the social stimulation and the experience children gain, but also the nature of their talent. An additional problem that appears considers the years-span of the critical period for the development of music conservation, which is not as obvious as in the case of Piaget's conservation.

During data collection. It seems that a lot of methodological difficulties come from the *testing procedure*. First, it is very important to apply adequate terminology, as well as to be flexible with the words. Children often have their own terms for different phenomenon, and one could be able to use their terms during testing if he/she previously made sure that children understand the meaning of those words. This fosters creativity and interest during the testing. Piaget had a strict protocol for his conservation tasks, but it could not be rigidly applied to music tasks. Children must be asked to pay attention to one aspect and also provide an answer about what changed. During the testing, one could notice that children remember the tasks better if there is no speaking between two recordings (Vuletić & Jegdić, 2017). How could the children then be

informed that the second recording is about to play? Contrary to the previous situations, it is possible to use a visual domain here. The idea is to raise one finger when the first recording is about to play and two fingers before the second recording. This wouldn't interfere with the auditory domain, which is crucial for the tasks. Additionally, attention should also be paid to the fact that even silence, let alone verbal and facial reactions, could be suggestive (Vuletić & Jegdić, 2017). The solution lies in the sitting arrangement (the same as in the Rorschach technique) next to each other. During data collection, the **additional material** seems to be important. Hence, the dilemma of using speakers or headphones occurred. This variable was not controlled in pilot research, but it has been noticed that headphones mostly help children focus and hear isolated sounds (Vuletić & Jegdić, 2017).

After data collection. An important aspect of this section is **data analysis**. The Chi-square was used because it was the only possible test for statistical analysis with the current sample. In order to use more serious analysis, it is necessary to plan a larger sample and to pose additional hypotheses, which would include new significant variables. Nevertheless, the qualitative analysis seems to be important for this type of study. To better understand the patterns of behavioral, cognitive, and emotional processes when it comes to children, the specialists in developmental psychology, or the researchers who have experience with children, should use qualitative methods too. This leads to the **interpretation** of the data, and so the mentioned pilot research points to the importance of the finesse in the responses of children with no music conservation (Vuletić & Jegdić, 2017). Children's terms and interpretations could be arbitrarily divided into two groups. In the first group are the children who have no music conservation, but the answers in the second group seem to be more complicated. Here looms the mindset that could soon lead to the development of music conservation, and therefore researchers must pay attention to it. An additional problem, or better, a dilemma that should be considered, is the relationship between Piaget's and music conservation. The results of the mentioned pi-

lot study implied that music conservation might start developing earlier than Piaget's, since children who solved none of Piaget's tasks managed to solve at least one musical task, no opposite cases (Vuletić & Jegdić, 2017). There is no definite explanation for these results, but there is a possibility that the difference between auditory and visual domains plays an important role, having in mind that the child is born with much better hearing than visual abilities.

Conclusion

What should be mentioned first is that recently no significant research has been conducted in this field. Most of the studies are outdated, notwithstanding new technology, which provides precision in many respects. It seems like these, and other methodological difficulties might be the reason for obtaining contradictory results. These studies deepen the validity problem of the conservation-type music tasks, so the critiques should be considered and methodologically more correct tasks designed.

Developing this topic could contribute to a better understanding of musical development. Radoš (2010) emphasizes the importance of cognitive theories in musical development for planning an adequate education program. These tasks might also be helpful when it comes to the auditions for admitting children to music schools.

Considering the value of the conservation aspect for understanding cognitive-musical abilities, solving methodological problems should continue. Generally, longitudinal research could be essential for this particular field, as well as exploring the connection between Piaget's and music conservation. It is also important to include other music aspects, such as harmony, duration, instruments, etc., and possibly to apply other aspects of Piaget's conservation (e.g., seriation) to these conservation-type tasks in music.

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Sight-Reading Strategies in Singing and Playing

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Abstract

Sight-reading is an ‘online’ activity that asks for a quick insight into the whole and/or parts, with the task to maintain fluency, accuracy and expressiveness of a musical piece performance without stopping, as if it were practiced. In this study, the concept of self-regulated learning was used as a framework for investigating performing in six subsequent phases of sight-singing: preparation, setting goals, performing, monitoring, solving problems and evaluation. We were interested in investigating the meta-cognitive strategies during sight-singing and comparing them with the already confirmed strategies in sight-playing, as well as in finding out about the strategies typical for those with higher self-efficacy and identifying the differences between the vocal-instrumental and music theory students. The sample consisted of 93 music students. The Sight-singing questionnaire was applied (10 questions, 1–5 Likert scale, 78 strategies during six phases), a parallel form of the Sight-playing questionnaire used in the previous study (Bogunović, 2017, 2018). Factor analysis (PCA, Varimax rotation method with Kaiser normalization) was applied for each of the six sight-singing phases. The extracted factors in the Preparation-phase included the following: General Overview, Structural Pattern Perception, Inner Hearing and Basic Overview; in Setting-goals: Fluency Control and Expressiveness, and in the Performance phase: Intuitive Performing, Expressive Performing, Inner Hearing, and Basic Parameters Control. In each phase of sight-singing and sight-playing, significant and high correlations between factors were confirmed. Music students who have higher self-efficacy in sight-singing use meta-cognitive strategies in the Preparation phase set their goals towards Fluency Control and Expressiveness and Inner Hearing and are also able to deal with the harmonic and structural complexity. The analysis did not reveal significant differences between the students of music theory and vocal-instrumentalists in any of the phases of sight-singing. Differences were

identified concerning several phases of sight-playing. The findings point out that almost the same cognitive strategies underlie the basis of sight-singing and sight-playing. Self-efficacy in sight-singing is related to efficient meta-strategies. Hence, research findings could contribute to increasing the correlation between two musical disciplines (ear training and vocal-instrumental teaching) and therefore improve the level of educational outcomes.

Introduction

The study, presented in the paper, relies on the assumption about the similarity of the sight-reading processes during the performance of two musical skills: sight-playing an instrumental piece and sight-singing a melodic task (in the framework of the solfège or ear training tuition). It is well known that sight-reading is an ‘online’ activity that asks for a quick insight into the whole and/or parts of a music piece, with the task of maintaining the fluency and accuracy of performing without interrupting the music stream (Lehmann & Kopiez, 2016). The piece is supposed to be played/sung from the beginning to the end, as if it were practiced, without stopping or slowing down, with the task to maintain fluency, accuracy and expressiveness of the performance. The existing findings confirm the role of cognitive, perceptive and motor abilities in acquiring the sight-reading skills, as well as the role of practice and education-related factors (Fournier, Moreno Sala, Dubé, & O’Neill, 2017; Kopiez & Lee, 2006, 2008). In this study, we focus our interest on metacognitive strategies, not taking into account the co-cognitive factors as in the previous one (Bogunović, 2018). We assume that both performance activities demand perceptual and cognitive abilities and/or skills, but engage different motor skills.

As a theoretical background, we used the self-regulated learning theory (McPherson & Zimmerman, 2002). The paradigm of the self-regulated learning cycle encompasses the following phases: forethought (referring to cognitive processes and personal beliefs), performance (involving the processes that occur during learning and affect concentration and performance) and self-reflection (involving the musician's subsequent response to the experience). These three processes are cyclical because the musician's self-reflection feeds back into forethought to influence future learning and performance (McPherson & Renwick, 2011; Zimmerman, 2000). Zimmerman and Campillo (2013) formulated the model which can be used to explain the self-regulated problem-solving in the performance of musical skills. Hence, we adapted the concept of self-regulated learning (SRL) to a certain extent for the investigation of sight-reading music as a self-regulated performance (SRP) (Bogunović, 2017). It refers to 1) Forethought (Preparation and Setting goals); 2) Performance (Performance, Monitoring [Difficulties and Easy for performing]), Problem-solving [Facilitating strategies] and 3) Self-reflection (Evaluation [Self-efficacy and Self-satisfaction]). This process is present in any activity of sight-reading in musical performing through the intertwining of metacognition, psychomotor behavior, evaluation and adaptation, which enables the almost simultaneous performance of all cycle phases of the self-regulated activity.

The main focus of the present study is on sight-reading when singing. It is the continuation of the pilot study that explored metacognitive strategies in sight-singing using the mixed-method (qualitative and quantitative). The pilot study gave clear directions for the further investigation of the cognitive organization of the musical materials and strategies that refer to the existing knowledge and learning experience. The findings of this study also had educational implications because it was confirmed that the sight-singers with a higher level of self-assessment skills had better insight into the structure of a melodic task and relied on inner hearing, as well as on the organization of musical and prob-

lem-solving strategies (Bogunović & Vujović, 2012). Further on, in another pilot study, we collected the strategies used when sight-reading from different psychological and music education literature (methodic of performing and solfège), as well as from the practice and experience of music students themselves (Bogunović, Zdravković, Popović, & Milutinović, 2016). In the next step, the final formulation of the Sight-reading questionnaire was performed, and it was clearly put into the framework of the self-regulated learning concept (Bogunović, 2017). The idea that the sight-reading skill, when playing, is not related only to cognitive and perceptual factors, but also to co-cognitive/personality dimensions as factors of efficient music skills performance, was confirmed by the findings that followed and showed the correlation of the sight-reading factors and some of the Big five model dimensions and facets (Bogunović, 2018). Hence, in this study, we aim at applying the same methodology, used in investigating metacognitive strategies while sight-playing, and finding out about sight-singing metacognitive strategies. We assume that, basically, the same processes underlie sight-reading in both music skills, and that music education and professional experience can make a difference in some phases of the process.

Research Methodology

First of all, we intended to identify metacognitive strategies during sight-singing and compare them with the already-confirmed strategies in sight-playing (Bogunović, 2018). Further, the aim was to obtain insight into the strategies typical for those with higher self-efficacy and to identify the differences between the vocal-instrumental and music theory students in sight-singing and sight-playing.

The sample consisted of 93 music students of the Faculty of Music in Belgrade (26 males), aged 18 to 39 ($M = 22.38$), who studied either at the performance departments and played different instruments (48%) or at theoretical departments (52%). Students had twelve to fifteen years of specialized music education experience. The three-level specialist music education

(elementary music school, music high school and higher music education (Faculty of Music) starts at the age of 5 to 7 and offers systematic tuition in instrumental playing, music theory and general subjects for the musically gifted children and youth (Nogaj & Bogunović, 2015). The course of sight-reading and playing, as well as sight-singing (in the framework of solfège lessons), is introduced at the secondary level of education and it is constantly present in the curricula onwards.

The Sight-singing questionnaire was applied (10 questions, 1–5 Likert scale, 78 strategies during six phases of the self-regulated perfor-

mance cycle). The questionnaire represents the parallel form of the Sight-playing Questionnaire used in the previous study (Bogunović, 2018). Participants were asked to estimate to what extent they applied the listed strategies in the subsequent phases of sight-singing. The reliability of the questionnaire was satisfactory (Cronbach $\alpha = .886$). Factor analysis (PCA, Varimax rotation method with Kaiser normalization) was applied for each of the six sight-singing and sight-playing phases. Based on the previous and new results, the comparison between sight-singing and sight-playing factors was performed.

Table 1. The Rotated component matrix of the Preparation phase – Varimax rotation method.

Preparation phase – Sight-singing strategies	Components			
	General Overview	Structure Patterns Perception	Inner Hearing	Basic Overview
Paying attention to the music style/composer/ period of composition	.844			
Paying attention to the instructions in the music text first	.818			
Identifying the tempo first	.773			
Trying to identify the character of a piece	.710			
Perceiving the model of harmony		.808		
Paying attention to the rhythmical figures	.408	.629		
Perceiving the sequential movements		.599	.357	
Analyzing the form/structure/parts of a composition		.539		.488
Singing 'silently' the most difficult parts			.782	
Analyzing tonality changes		.354	.655	
Determining metrical organization and tonality			.494	.472
While browsing, hearing music with inner hearing		.401	.437	-.369
Starting to sing immediately, trusting intuition				-.799
Running through the text from the beginning to the end		.333	.386	.535
Total variance extracted 62.37%	31.42%	13.78%	9.83%	7.34%

Results

Sight-singing as Self-regulated Performance

Preparation. Before applying Principal component analysis, for the preparation phase, items 1, 2, 8, 9 were excluded from the analysis, leaving 14 items, all showing communality values higher than 0.3, as appropriate. Suitability of the PCA for the given data was adequate (KMO = .739 and Bartlett’s Test of Sphericity $\chi^2(91) = 434.259, p < .001$). PCA revealed the presence of four components, explaining 62.37% of the variance respectively. An inspection of the scree plot revealed a break after the third component, but the four-factor solution was kept as a more explainable one. The extracted factors were General Overview, Structure Patterns Perception, Inner Hearing and Basic Overview (Table 1).

The General Overview of the melodic example before singing is the most saturated factor. It contains strategies that give a wider or ‘a big picture’ of the task. Mostly, this is the way students have been taught to perform this task. Further, competent sight-reading depends on the ability to identify familiar patterns and spend time evaluating the musical material before beginning to perform (Radoš, 2010). The other three factors are relatively equally present. The Structure Patterns Perception factor comprises strategies that tend to find out about the medium level units of melody organization. The Inner Hearing strategies build up auditory mental representation and harmony patterns of the melodic task, while Basic Overview includes strategies oriented towards basic information about the melodic task.

Setting-goals phase. When it comes to the strategies used in the second phase of the self-

Table 2. The Rotated component matrix of the Performance phase – Varimax rotation method.

Performance phase – Sight-singing strategies	Components			
	Intuitive Performance	Expressive Performance	Inner Hearing	Basic Parameters Control
Relying on musical intuition	.717			
Singing automatically, not thinking too much	.698			
Singing only the important notes	.642			
Focusing on what I see, not paying attention to what is next	.639		.328	
Watching the music text forth all the time	-.559		.325	.363
Paying attention to the expressiveness of singing		.938		
Paying attention to dynamic		.921		
Paying attention to singing in an appropriate tempo		.671		.434
Hearing notes before singing		.314	.712	
Mostly relying on hearing, less on analysis	.315		.660	
Focusing on the musical flow			.621	
Paying attention to keeping the pulse while singing	-.389		.555	.488
Focusing on the most important notes				.782
Paying attention to rhythmical figures				.715
Total variance extracted 61.61%	25.42%	17.71%	10.38%	8.10%

regulated performing cycle, PCA extracted two factors with a total of 65.97% variance (KMO = .679; Bartlett's Test $\chi^2(15) = 147.581, p < .001$). Both factors are represented by the strategies that are the core of the sight-singing skill. The Continuity/Fluency Control (43.28%) is one of the important characteristics of sight-singing such as singing from the beginning to the end without stopping, paying no attention to mistakes, keeping the appropriate tempo. The second factor, Expressiveness (22.69%), reflects an intention to interpret the sight-singing task and not perform technically only.

Performance. PCA of the performance phase strategies (KMO = .693; Bartlett's Test $\chi^2(91) = 433.340, p < .001$) extracted four factors (61.614% total variance). Interestingly enough, each of them presents a typical strategic orientation in performing (Table 2). The Intuitive Performing strategies factor supports the idea of such a highly developed skill that an individual perceives it as automatic, i.e. as if the execution of the task were done without previous consideration, namely, thinking or analysis. The second and the third factor, Expressive Performing and Inner Hearing, are the most valuable strategies for successful sight-singing. This implies a quick reading of the signs for expressiveness and completing the task in accordance with them, as well as following the auditive representation while singing. The fourth factor, Basic Parameters Control, includes the strategies that keep control of the basic performance elements.

Monitoring – difficult and easy elements. During the preparation, but also during the performance phase, students, naturally, observe the 'spots' that are difficult or easy for them to sing. Factor analysis (KMO = .790; Bartlett's Test $\chi^2(91) = 551.034, p < .000$) of the problems that students reported they had while sight-singing, extracted two as the fixed number of factors (Table 3). This enabled a better interpretation of results. They focus on two major groups of problems, which have also appeared in our previous research (Bogunović & Vujović, 2012). One factor is Complex Rhythm, Meter and Tempo, which probably aggravates easy comprehension of the melodic flow. The second, Harmonic and Structural Complexity, refers to the difficul-

Table 3. The Rotated component matrix of the Monitoring phase – Varimax rotation method.

Monitoring phase – difficulties in singing	Components	
	Complex Rhythm, Meter and Tempo	Harmonic and Structural Complexity
Meter is not familiar	.834	
Meter is long	.834	
Meter is changing	.795	
The compound meter (6/8, 9/8, 12/8)	.722	
When parts for other instruments are written too	.617	
Rhythm and meter are complex	.480	.307
Tempo is slow (problems with counting)	.382	
Many alterations		.878
Many modulations		.843
Lots of leaps		.683
Many ornaments		.627
Harmony changes are not logical	.468	.555
Structure is not clear	.323	.498
Someone is singing the other melody at the same time		.425
Total variance extracted 50.662%	35.96%	14.70%

ties stemming from the less transparent musical material (many alterations, modulations, leaps, ornaments), but also from a less logical harmonic structure, implying the structure that does not meet expectations based on the already

learned harmony rules. At this point, it is worthy to emphasize the role of the expected melodic flow (Huron, 2006; Meyer, 1986) that facilitates sight-singing. It is based on the cultural experience and/or music education that facilitates perception, inner hearing and performing during sight-reading, here sight-singing.

Factor analysis of the musical structure elements that make sight-singing easy ($KMO = .767$; Bartlett's Test $\chi^2(28) = 205.015, p < .001$) extracted 56.95% of the total variance and two factors: Transparent Musical Structure (42.53% variance extracted) and Easy Chunking and Inner Hearing (14.42%). These two factors are, to a certain extent, opposite to those that cause difficulties. Again, they emphasize the role of perceptual and cognitive determinants of successful and fluent sight-reading and sight-singing.

Problem-solving and facilitating strategies. An interesting issue, which is also very important for the practice of music performance, is what students do when they are faced with the problems in sight-singing. They rated their strategies on the list of the most frequent ones. Factor analysis ($KMO = .832$; Bartlett's Test $\chi^2(15) = 230.746, p < .001$) extracted a total of 70.95% variance and two fixed factors: highly saturated Stop-Correct-Continue factor (54.84%), which would be the opposite from a strategy plausible for sight-singing "Ignoring mistakes and continuing with singing till the end", and the Dysfunctional strategies factor (16.11%), as "Stopping completely" or "Starting from the beginning", which is more typical for novices. This result is not so credible for the practice of higher music education, because music students mainly apply strategies that are not in accordance with the skill requirements, and that is 'ignoring mistakes and continuing with singing till the end'.

When asked about facilitating strategies, music students chose the strategies which were grouped by PCA in two factors (total of 70.954% variance): Focus on Important Tonal Functions and Auxiliary Strategies (Table 4) ($KMO = .832$; Bartlett's Test $\chi^2(15) = 230.746, p < .001$). The first factor is significantly highly saturated and contains strategies that are very much expected during sight-singing, presenting a cognitive

Table 4. The Rotated component matrix of the Facilitating strategies – Varimax rotation method.

Problem-solving – Facilitating strategies	Components	
	Focus on Important Tonal Functions	Auxiliary Strategies
Focusing on the important notes in the melody	.852	
Focusing on stable notes	.830	
Frequently reminding of the tonal center	.667	
Focusing on the harmony flow	.636	
Trying to identify chords, intervals, or familiar music motives		.838
Imagining to play the same melody on the instrument (imagining the position of the fingers)		.711
In case of a difficult leap, imagining auxiliary notes	.473	.649
Total variance extracted 61.33%	44.58%	16.75%

orientation towards harmonic and functional thinking and having tonality and harmony in mind as an "inner hearing back-up". These strategies certainly have a good impact on intonation and correct task performance. Hence, a melodic example is not played note-by-note, but with a "bigger picture" of the tonal and harmonic patterns. In this way, students use the previous knowledge, namely, the "how to do" memory (Ginsborg, 2006), and perceive the task as a whole in which every note has its place and function. Such a way of performing ensures correct intonation and continuity in performing a task. The second factor includes Auxiliary Strategies that are essentially based on inner hearing.

Self-reflection and evaluation. Evaluation parameters in this study were in the scope of self-estimation. Hence, music students assessed their self-efficacy and enjoyment in sight-singing, as well as the rate at which the benefits of sight-singing and sight-playing transferred to one another. The results show that self-efficacy in the sight-singing skill was rated as slightly more than average, on a 1–5 Likert scale ($M = 3.72$, $SD = .77$). Furthermore, only 15.2% of students estimated their skill with the highest rating, while 45.7% assessed it as very good and 34.8% as good. Enjoyment was reported as average in total ($M = 3.22$, $SD = 1.19$), where only 16.3% of students enjoyed sight-singing at the highest level, and as many as 12% did not like it at all. The correlation between self-efficacy and enjoyment is rather high anyway ($r = .66$, $p < .001$). The assumption that the skills involved in sight-singing and sight-playing have a significant transferable value was confirmed, since a high mutual correlation of these two skills was shown $\chi^2(4) = 64.37$, $p < .001$). This finding leads towards the conclusion that two skills are significantly and highly related and that the educational output of sight-singing on sight-playing and *vice versa* is valuable.

We also searched for the metacognitive strategies in sight-singing used by those who estimated that they had higher self-efficacy of the skill, assuming that this finding could have strong educational implications. We found that the strategies used by the students with higher self-efficacy in every phase of sight-singing were the following:

- *Preparation*: General Overview ($r = .206$, $p < .05$), Structure Patterns Perception ($r = .33$, $p < .01$), Basic Overview ($r = -.413$, $p < .01$);
- *Setting goals*: Continuity/Fluency Control ($r = .246$, $p < .05$), Expressiveness ($r = .364$, $p < .01$);
- *Performance*: Expressive Performance ($r = .380$, $p < .01$), Inner Hearing ($r = .335$, $p < .01$);
- *Monitoring – Difficulties*: Harmony and Structure Complexity ($r = -.367$, $p < .01$);

- *Monitoring – Easy*: Transparent Musical Structure ($r = .332$, $p < .01$), Easy Chunking and Inner Hearing ($r = .389$, $p < .01$);
- *Problem solving*: Dysfunctional strategies ($r = -.266$, $p < .05$).

These results confirm the assumption of the importance of metacognitive strategies while sight-singing and lead to an inference that those students who have confidence in their skill, who feel competent and who have mastered the skill, use the strategies that involve the “top-down” organization of thinking. This implies perceptive chunking, an analytical approach and efficient strategies in solving problems, as well as fluent and expressive performance. They do not apply the “bottom-up” cognitive strategies, have no problem with harmony and structural complexity and do not use dysfunctional strategies.

Are Metacognitive Strategies in Sight-singing and Sight-playing the Same?

In order to answer this question, we compared the factors in all phases of self-regulative performing of sight-singing and sight-playing. At this point, we have to mention that the factors of sight-playing were reported in the previous research (Bogunović, 2017) in which music students were asked about their metacognitive strategies while playing the piano, which assumed two lines of music, more complex notation, harmony and form, and a longer piece of music. Statistical comparison gave many significant and high correlations between the factors in each phase of sight-singing and sight-playing, which confirmed the assumption that similar metacognitive strategies were used in both activities. We do not present them here because of the limited space. Qualitative analysis of the factors showed that almost the same cognitive strategies underlie the basis of sight-singing and sight-playing, implying high similarity of the processes. Differences can be attributed to the motor aspect of instrumental performance, as well as to the length and complexity of the musical piece, while the vocal performance of a melodic task implies one melodic line and a shorter length. Namely, in the Preparation phase

of sight-singing, the factor of the Structure Patterns Perception is present, and, in sight-playing, the Analytical factor (asking for different levels of the perceptual-cognitive engagement). In the Setting goals phase, sight-playing demands Technical Accuracy, and, in the Performance phase, sight-playing implies Expertness (taking into account the wider aspects of performance).

Differences Between the Vocal-instrumental and Music Theory Students

We have set this aim for the research wondering whether music students at the performing, vocal-instrumental departments and those at the music theory departments have different metacognitive strategies in sight-singing and -playing, based on the distinctions in their study curricula. The analysis did not show significant differences between the students of music theory and vocal-instrumentalists in any of the phases of sight-singing.

Differences were identified concerning several phases of sight-playing (ANOVA). Non-significant differences between vocal-instrumental and music theory students were detected at the following strategies: General Overview of the Structure ($F(1,301) = 1.075, p = .301$), Inner Hearing while preparing ($F(1,301) = .036, p = .849$), Analytical Micro Strategy ($F(1, 301) = 1.890, p = .170$), in Setting goals phase Fluency Control ($F(1,336) = 1.245, p = .265$), Fluency in performance ($F(1,276) = 2.099, p = .149$), Inner Hearing while performing ($F(1,276) = 3.346, p = .068$), Transparency in Musical Structure as easy factor ($F(1,322) = .027, p = .869$) and Readability as factor of difficulties in performing ($F(1,287) = 3.258, p = .072$).

Students at the vocal-instrumental departments used the following strategies to a significantly greater extent: General Overview of the Character in Preparation ($F(1,301) = 39.945, p < .001$), Setting Expressiveness as a goal ($F(1,301) = 6.776, p = .010$) and Aiming for Expertness in Performance ($F(1,336) = 22.142, p < .001$). They also had difficulties with Harmony and Structure ($F(1,287) = 9.942, p = .002$). Music theory students used Analytical Macro Strategies in the Preparation

phase ($F(1,301) = 17.121, p < .000$) significantly more often; they had more Technical difficulties in playing ($F(1,287) = 6.572, p = .011$) and more frequently used the Dysfunctional Strategies ($F(1,320) = 7.404, p = .007$). They also had a tendency towards Perfectionism ($F(1,276) = 6.265, p = .013$).

These differences in approaching and executing sight-playing are mostly the result of the music education practice and the performance experience of students. Performers are focused more on a “bigger picture” and striving for expertness and expressiveness, while music theorists are more focused on the “micro” level and precise analysis of music and do not have high instrumental performance skills. This means that different aspects of the same profession bring about the development of diverse skills.

Conclusion

The findings of the study indicate that almost the same metacognitive strategies are involved in the processes of sight-singing and sight-playing, as well as that differences in approach and execution, are mostly the result of the music education practice and performance experience of music students. Some factors are present only in sight-singing (e.g., Structural Patterns Perception, Expressiveness) and some only in sight-playing (e.g., Analytical Approach, Technical Accuracy, Expertness). Mutual transferability of the core strategies justifies the inclusion of sight-singing as a skill in the frame of solfège and in the curricula of higher music education. We can conclude that higher self-efficacy in sight-singing is related to efficient meta-strategies. The students who feel competent in mastering their skills use the strategies that involve the “top-down” organization of thinking, which refers to perceptive chunking, analytical approach and efficient strategies in solving problems, as well as to fluent and expressive performance. They do not apply the “bottom-up” cognitive strategies, deal better with the harmonic and structural complexity and do not use the dysfunctional strategies. The research findings could contribute to an increasing correlation between two musical disciplines (ear

training and vocal-instrumental teaching) and therefore improve the level of educational outcomes.

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Music, Stress, and Performance Anxiety

Differences in the Stress Coping Styles and Social Competences among Classical and Jazz Musicians

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Abstract

The musical milieu raises a number of challenges for artists. Coping with these depends not only on the appropriate level of one's musical abilities but also on a number of personal competences. The ability to manage/overcome stress in difficult situations and a high level of social competences fall under the conditions of high musical achievement and success in musical performance. Furthermore, the psychological functioning of musicians might be partly determined by impacts from musical genres that those musicians performed. Diverse styles of music education and the expectations of musicians performing various musical genres have become an inspiration for the research exploring the existence of differences between classical and jazz musicians. Amongst the important psychological areas for functioning effectively as a musician, stress management styles and social competences have been chosen for this study. It was assumed that the genre of performed music, and thus the varied mode of music education in the field of classical and jazz music performance can cause significant differences in the psychological functioning of musicians. Of the 73 musicians that participated in the study, 38 were classical musicians and 35 were jazz musicians, jazz musicians revealed a significantly higher level of social competence in terms of social exposure compared to classical musicians. There were no differences in the style of coping with stress between the studied group of musicians.

Introduction

The phenomenon of stress is quite often analyzed in the musical environment, both from a practical and research perspective. This is evidenced by numerous works devoted to the performance anxiety experienced by musicians as well as publications on the strategies of dealing with the symptoms of stage fright (Bissinger-Ćwierz & Nogaj, 2018; Kantor-Martynuska &

Domaradzka, 2018; Kenny, 2011; Klickstein, 2009; Williamon, 2004). The education and profession of a musician constantly require the artist to cope with stress, mainly in the context of public performances (Steptoe, 1989). This condition facilitates or hinders the functioning of a musician at the physiological, behavioral and cognitive levels, in connection with preparations for the concert or during it, and even after leaving the stage (see Kantor-Martynuska & Domaradzka, 2018; Kenny, 2011; Steptoe, 2001). The musicians' way of responding to stress in the context of public performances is, therefore, a key issue.

Dealing with Stress among Musicians

Coping with stress is a cognitive and behavioral ability to master specific requirements in difficult situations (Lazarus & Folkman, 1984). The general human's functioning of his/her life and professional achievements in music are often indirectly dependent on the skills and style of coping with stress (see Manturzevska, 2014). One of the classifications of stress coping styles (Parker & Endler, 1992) distinguishes (1) task-focused style (defines the tendency to make efforts to solve the problem through cognitive actions or attempts to change the situation); (2) emotion-focused style (refers to people who concentrate on themselves and on their own emotional experiences in stressful situations); (3) avoidance-focused style (to divert attention from thinking, experiencing a difficult situation through two forms: involvement in alternative activities, or looking for social contacts). Emotion-focused style and avoidance-focused style are significantly less effective ways of coping with stress than task-focused style.

Social Competences among Musicians

In turn, the phenomenon of social competence among musicians is rarely included in research in the field of music psychology (Nogaj, 2018). Among the numerous classifications of social competences (see Martowska, 2012), the classification of Matczak (2001) deserves special attention. Based on various human life situations, she distinguished competencies that determine the effectiveness of behaviors in (1) intimate situations, (2) social exposure situations and (3) situations requiring assertiveness. Musicians are expected to have a high level of social competence, which, along with a certain level of musical abilities and a range of cognitive-personality-emotional conditioning, is an integral part of the musician's functioning (see Gaunt & Hallam, 2009; Kemp, 1996; Manturzevska, 2014). The level of social competence is also important, especially those related to the social exposition, which can be the main determinant of school and academic achievements (Brackett, Mayer, & Warner, 2004) and success in a professional career (Smółka, 2016).

Psychosocial Differences Between Classical and Jazz Musicians

Analysis of the selected literature indicates specific differences in the psychosocial functioning of musicians representing the performance of various musical genres. Jazz musicians exhibit a significantly lower level of stress experience compared to classical musicians. They also have a higher level of openness to experience (understood as a personality trait) and a greater ability to think creatively (Benedek, Borovnjak, Neubauer, & Kruse-Weber, 2014). They are characterized by greater independence of action during a musical performance. Conversely, classical musicians are more faithful to the composer's message, as well as the requirements of the conductor (Dobson, 2010; Parasuraman & Purohit, 2000). The increased levels of stress among classical musicians are usually connected with anxiety, precisely about the precision of a performance (Kenny, 2011). The results of research among musicians perform-

ing various musical genres reveal that classical musicians display the highest level of stress associated with public exposure, in comparison to jazz musicians and popular music performers (Papageorgi, Creech, & Welch, 2013).

In addition to the attempt to capture/establish/distinguish differences in the psychosocial functioning of classical and jazz musicians, research is undertaken to indicate differences in their auditory abilities. These differences depend on years of musical training, which is the result of diversified brain activity, primarily in the auditory cortex (see Pantev et al., 1998; Hyde et al., 2009). Whilst jazz musicians are definitely more sensitive to understanding the relationships resulting from transposition and changes in the contour of the melody, classical musicians are more sensitive in terms of precision tuning and intonation.

The results of numerous studies allow for more and more detailed knowledge about the functioning of various specialist musicians, both in the psychological and biological sphere. At the same time, these results inspire one to ask more questions. In this research, the focus was on measuring coping strategies and social competences among musicians of different genres. These variables are not commonly diagnosed in research in the musical environment, although they concern the emotional and social sphere of human functioning, which is equally important for gaining high artistic achievements (see Manturzevska, 2014).

The main goal of the research is to explore the differences between musicians educated in the field of classical and jazz music in terms of their styles for coping with stress and social competences.

The research question aims to resolve/deduce/uncover if there are differences between classical and jazz musicians in the field of stress coping styles and social competences.

Due to differences in the psychosocial and even neuroanatomical functioning occurring among musicians of various specialities (see Benedek et al., 2014; Papageorgi et al., 2013; Vuust, Brattico, Seppänen, Näätänen, & Tervaniemi, 2012), it can be assumed that jazz musicians stand out with a lower level of stress and

a higher level of social competences in the field of public exposure compared to classical musicians (see Benedek et al., 2014; Papageorgi et al., 2013).

Literature analysis allows one to formulate two research questions: (1) are classical musicians less effective in dealing with emotions on the stage than jazz musicians? (2) are jazz musicians distinguished by a higher level of social competence than classical musicians?

Method

Characteristics of the Sample

The study group consisted of 73 students from the Music Academy in Bydgoszcz, of which 38 studied classical music at the Instrumental Department, and 35 people studied music in the jazz trend at the Department of Conducting, Jazz and Music Education. In each tested sample there were people playing various instruments (strings, keyboards, woodwind, percussion). The age of the surveyed students ranged from 18 to 28 years ($M = 21.25$, $SD = 1.94$) and 27 women (37%) and 46 men (63%) took part in the study.

Characteristics of the Tools

The research questionnaire tools were used to carry out the research. For the study of stress coping strategies, the Coping Inventory for Stressful Situations Questionnaire (CISS) by Endler & Parker (Polish adaptation by Strelau, Jaworowska, Wrzeceniewski, & Szczepańczyk, 2005) was used. To measure social competences, the Social Competences Questionnaire (SCQ) by Matczak (2007) was used.

The CISS questionnaire consists of 48 statements about various human behaviors in stressful situations. Answers are given on the Likert scale, indicating a number from 1 to 5, determining the degree of compliance with the given statement. The questions are divided into three scales, corresponding to different strategies/styles of coping with stress: (1) task-focused style (TFS); (2) emotion-focused style (EFS); (3) avoidance-focused style (AFS) is to divert attention from thinking, experiencing a difficult

situation through two forms: getting involved in alternative activities (AA) or looking for social contacts (SC). In terms of reliability, as measured by the Cronbach's *alpha* coefficient, the reliability of the tool can be considered satisfactory, and the obtained data is very consistent. The factor structure of the Polish adaptation of the CISS questionnaire is consistent with the theoretical assumptions of the tool.

SCQ is a self-report tool that positions the definitions of various activities or events, expressed in the infinitive form. The examined person assesses the effectiveness with which he performs them using a four-level scale, from 1 to 4. The test consists of 90 items, of which 60 are diagnostic, and the remaining 30 refer to non-social skills of the subject, which are not taken into account when calculating the results. Diagnostic positions, in addition to the general result of social competences, form three separate scales: (1) social competences in intimate situations (I); (2) social competences in social exposure situations (SE); (3) social competences in situations requiring assertiveness (A). The reliability of the SCQ tool is satisfactory.

Characteristics of the Procedure

During the research, students were divided into three groups of around 25 people, in a room that provided the opportunity to calmly and independently answer questions. Implementation of the set of questionnaires took the studied students about 30 minutes to complete. The tests were carried out in the presence of the authors. The research was voluntary and anonymous.

Results

In order to determine/establish the dominant styles of coping with stress and the level of social competences characterizing the researched classical and jazz musicians, the analysis was carried out with regards to basic statistics. The analysis has shown that in terms of coping styles, both classical and jazz musicians mostly use a task-focused style of coping with stress (Table 1). In the area of social competence, a higher score among jazz musicians in terms of social exposure can be noticed (Table 2).

Table 1. Styles of coping with stress and differences among Classical and Jazz musicians.

Stress coping styles	Music speciality	M	SD	U	P
Task focused style	Classical	5.84	2.26	633.5	.73
	Jazz	6.06	2.03		
Emotions focused style	Classical	5.71	1.71	642.5	.81
	Jazz	5.71	1.54		
Avoidance focused style	Classical	4.39	1.53	619.0	.62
	Jazz	4.60	2.10		
Alternative activities	Classical	4.68	1.76	609.0	.54
	Jazz	4.97	1.95		
Social contacts	Classical	4.68	1.74	652.0	.89
	Jazz	4.83	1.72		

Further analysis, in the form of the U Mann-Whitney test, did not show any significant differences in any of the stress coping styles among classical and jazz musicians (Table 1). In connection with the above, the answer to the question (1) – are classical musicians less effective in dealing with emotions on stage than jazz musicians? – is negative.

Significant differences were noted in the field of social competences (Table 2). Jazz musicians display a higher level of social competence in public exposure than classical musicians. This means that jazz musicians might be much better – in comparison to classical musicians – at dealing with the situation of a public performance. The answer to question two – are jazz musicians distinguished by a higher level of social competence than classical musicians? – can be affirmative.

Conclusion

The conducted analysis provided an answer to the posed research question, which mainly concerned the recognition of differences between musicians specializing in the performance of classical or jazz music in the field of stress

Table 2. Social competences and differences among Classical and Jazz musicians.

Social competences	Music speciality	M	SD	U	P
Overall score	Classical	5.13	2.43	545.5	.19
	Jazz	5.86	2.16		
Intimacy	Classical	5.42	1.95	664.0	.10
	Jazz	5.66	2.18		
Social exposure	Classical	5.34	2.43	490.0	.05
	Jazz	6.51	2.24		
Assertiveness	Classical	5.21	2.37	497.0	.06
	Jazz	5.89	1.95		

coping styles and social competences. Using the example of studied groups of musicians, it is possible to indicate some differences between musicians in terms of social competence in the field of social exposure. Jazz musicians have demonstrated a higher level of social exposure skills, which means that they are much better – in comparison to classical musicians – at dealing with the situation of a public performance. Furthermore, studies from other psychological sub-disciplines confirm that people with high social competences receive more support from the environment, which allows for more effective ways of dealing with stress (Cohen, Sherrod, & Clark, 1986; Strelau et al., 2005).

It was surprising that in the studied groups of musicians there were no differences in the use of selected styles of coping with stress. It was assumed that jazz musicians, due to the lower perception of the performance anxiety (Papageorgi et al., 2013) would exhibit a significantly lower level of emotion-focused stress coping styles from classical musicians. The lack of definite differences in the groups of classical and jazz musicians may result from certain limitations of this study. First of all, the studied groups were relatively small. Secondly, the respondents were former students, so they may be characterized by a lower intensity of features typical for professional musicians. In addition, the vast major-

ity of jazz students began their education in the mainstream of classical music.

In conclusion, it is worth emphasizing that the attempt to learn the specific functioning of classical and jazz musicians provokes the planning of further research, which will take into account the measurement of new variables, e.g. to what extent differences in temperament and personality that appear among the musicians of different genres, influence their strategies of coping with stress and social competences (see Kemp, 1996; Nogaj, 2018)? Are these differences the result of personal dispositions (such as temperament) or are they the effect of the specific music genre being performed? Also, it would be worth considering the mediating role of social support. As music is an extremely colorful and diverse phenomenon, dealing with different musical genres requires a range of narrow and specific competences.

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Some Remarks on the Performance Anxiety among Musicians: A Psychoanalytic Perspective

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Abstract

A major impediment to performing musicians is the ambivalence between profound motivation to perform and anxiety connected with the act of performing. This anxiety may even lead to the complete inhibition of performing an activity. Some researchers have observed that roughly one-half of performers of classical music experience a significant problem connected to stage anxiety and depression. Music performance anxiety (MPA) is an outcome of the interplay of many factors, from genetics and environmental stimuli to the individual's experience, emotions, cognition and behavioral habits. What has received much less attention, however, is the unconscious roots of this problem. In the present paper, we shall focus on two generic factors that from the psychoanalytic perspective play a part in the process of generating high levels of MPA: one related to creative regression, the other concerning the affective sphere. Firstly, creative regression is a crucial prerequisite for the quality of musical performance. Since the act of performing involves balancing between regression (primary processes), and high control of memory and motor activity (secondary processes), a split of the ego occurs, with freely floating anxiety that is difficult to master. A second major factor belongs to the affective sphere: performing musicians are presenting to the audience their most vulnerable preverbal self. Reactions of the audience, however, whether positive (hence extremely important for the balance of the healthy narcissistic self), or negative (potentially provoking self-eneeblement) cannot be controlled, which constitutes an additional source of anxiety. Some implications of these views relate to the education of prospective creative-productive professional musicians in the domain of the development of cohesive self and ego strength that is able to master the anxiety. This mastery would serve a creative and productive life, instead of leading into symptoms or isolation from the stage.

Introduction

There is an abundance of proof of the ubiquity of stage fright among professional musicians (Clark, 1989; Fishbein & Middlestadt, 1988; Wesner, Noyes, & Davis, 1990). As for its causes, often mentioned are negative thoughts (Kendrick, Craig, Lawson, & Davidson, 1982; Nagel, Himle, & Papsdoff, 1989; Steptoe, 1989). Just what the origins of these thoughts are, as well as their content, could be the domain of psychoanalytic understanding. There are many musicians who have undergone psychoanalytic treatment. For psychoanalysis, they left many insights into their inner world, in which the stage anxiety was, as a rule, if not a crucial, then a very important obstacle. This paper will only briefly report on the findings that still need to be verified. Since we presume that not all readers will be sufficiently adept in psychoanalysis, we will begin with a brief introduction of the psychoanalytic framework of our explanation.

One of the cornerstones of the psychoanalytic model of mind is its division into two distinctive types of mental processes. One is aimed at external reality, with the functions of perception, logical thinking, memorizing, etc. (Freud, 1911/1958). Such processes are, of course, conscious, and are marked quite differently from unconscious processes that represent internal reality, including fantasy. The unconscious processes are primary, for they lie beneath those that were developed later, and are therefore secondary. The dynamics of these two domains is intensive, and their borders, from the structural point of view, are more or less blurred. At the beginning of mental life, all the processes were unconscious, that is, primary. In the course of

development, they will be, but only to a certain extent, replaced with contacts with reality. This is a normal progression, but the path along which the replacement occurs is not linear. In fact, the progression is, in its turn, replaced with temporary – or lasting – regressions, when the primary processes take over again. This means that the archaic developmental stages are not obliterated: the new ones are built on the foundations of the old.

Two Faces of Regression

Psychoanalysts make the distinction between pathological and creative regressions. Pathological regression leads to mental illness, while the creative regression that is voluntary and temporary, is a phenomenon frequently occurring in artists and musicians (Knafo, 2002; Kris, 1939, 1950, 1952). This means that they use their fantasy to shape their expressions according to the media of presentation, or domain of art they belong to.

Developmental psychoanalysis conceives of the aforementioned stages in a way presented in Figure 1:

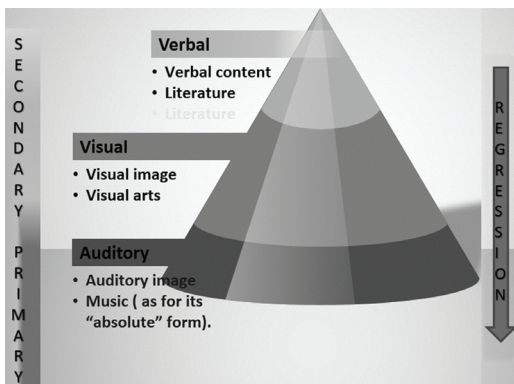


Figure 1. Developmental stages of primary and secondary processes.

At the earliest stages of development and experience, probably before the birth, the auditory sphere was dominant. We can call it the stage of auditory images. Later on, visual imagery will take over, and when the development reaches the stage of acquiring language, the verbal domain will become dominant.

We can say that, when materializing the fantasy, the path of regression is different for literary artists, visual artists and musicians. And we can see that the musician's path to regression is the deepest when compared to the other two, reaching close proximity to primary processes.

Here, however, we may want to learn more about these enigmatic unconscious primary processes. It will transpire that they are not so enigmatic, after all: we encounter them every night when we dream. They store our actual daily experience according to their own laws, or more precisely, they transform them. It took Freud's genius to discover these laws: in dreams, the objects of reality will be displaced, reversed, turned into the opposite; there will be *pars pro toto* representations, micropsia and macropsia, etc. (Freud, 1900/1953; Friedman, 1960).

If a musicologist finds these transformations familiar, it is because music, being developmentally archaic, carries their imprints in virtually all of its aspects, structure, form, thematic procedures and so on. In our previous works, we repeatedly tried to demonstrate these similarities, by comparing musical structures with primary processes of mentalization (Zatkalik & Kantić, 2013, 2015, 2017). We adduced a large number of examples to corroborate this, but nonetheless, for the sake of completeness of this paper, we will provide a very brief overview of how these transformations work, even if it means repeating some of them. The focus is on fragmentation, condensation and turning into the opposite.

Fragmentation seems to be the destiny of most themes, and as a matter of course, these fragments represent themes in development sections, just as parts of objects stand for objects as a whole. The theme may be fragmented in a highly unusual way, as the areas inside rectangles indicate (Figure 2, Mozart, 1878).



Figure 2a. W. A. Mozart: Piano Sonata KV 309, beginning.



Figure 2b. W. A. Mozart: Piano Sonata KV 309, the beginning of the development section.

Even when it seems that we are dealing with the smallest unit, a motif, there is still room for further fragmentation (Figure 3), and the pointillistic texture such as frequently found in the Anton Webern demonstrates how the very tissue of music can break down.



Figure 3. Robert Schumann: *Erster Verlust*.

Condensation affects virtually every aspect of music. Diverse thematic materials can be fused, as in the third movement of Beethoven's Ninth Symphony (Figure 4). The form of this movement is variations on two themes, and the above example reproduces the respective beginnings of the themes. When the first theme reappears in a varied form, we not only recognize its melodic skeleton, we can also see how certain properties of the second theme are grafted onto it, as it were.



Figure 4a. L. v. Beethoven: Ninth Symphony, III movement, the first theme.



Figure 4b. L. v. Beethoven: Ninth Symphony, III movement, the second theme.



Figure 4c. L. v. Beethoven: Ninth Symphony, III movement, a variation on the first theme, with elements of the second.

Certain theoretical models, notably the Schenkerian one, can be viewed in light of condensation. In Figure 5 we can see the deep structure of a typical minor-mode sonata form. The first tonic chord, for instance, condenses all events contained in the first theme and transition. It is not only a manner of graphic presentation: the listener (according to Schenkerians) is expected to conceptualize somehow many lower-level events condensed into a single higher-level one. Polyphony can also be thought of as a kind of condensation, and the ultimate example can be found in György Ligeti's micropolyphony.

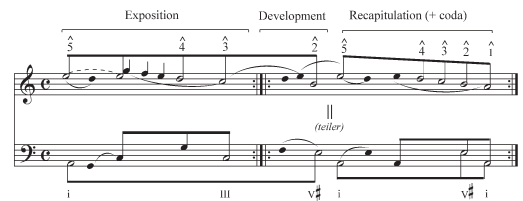


Figure 5. Schenkerian model of sonata form.

Finally, Figure 6 (Haydn, 1985) shows how a typical cadential gesture can also serve as the opening of a piece, thus acquiring the meaning which is its exact opposite.



Figure 6a. J. Haydn: String Quartet Op. 33, No. 2, finale.



Figure 6b. J. Haydn: String Quartet Op. 33, No. 2, finale.

After this extended but – we believe – necessary introduction, we return to the main theme, the stage anxiety of musicians. While performing, they need to divide, to split their self into

one that will leave them at the “mercy” of the primary modes of representation, to regress to the deepest level of the most archaic mental processes, and the other, which simultaneously maintains omnipotent control over the instrument, over their memory, and much more. If the performer applies only secondary processes, the performance will be mechanic, automatic, and not aesthetic enough. If this pendulum swings to the other side, the danger of being overwhelmed by the primary process will increase, and anxiety, as a signal of danger, will unfold. It is the performer’s task to master the tensions that are incorporated in the music he performs, and not his own anxiety, which indeed may paralyze his memory of the text, and the control over the instrument. This obviously means that anxiety of such magnitude exists only in the profession of a musician.

Narcissistic Issues

Here we may expect a quite natural question: how can we account for the fact that so vast a number of individuals are attracted to such a difficult profession? What gain do they seek to attain? We can say a great deal on the subject of the unconscious motivation of performing musicians, but it is not the subject of the present article. To begin with the description of our second factor responsible for stage anxiety, we shall quote Mozart’s letter to his father from Paris, May 1, 1778: “Give me the best piano in Europe, and listeners who understand nothing, or do not wish to understand, and who do not sympathize with me in what I am playing, I no longer feel any pleasure” (Mozart, W. A., 1769–1791, W. A. Mozart to J. G. L. Mozart, May 1, 1778). We suppose that this statement sounds familiar and easy to understand, but it nonetheless leaves us wondering about the enormous power it ascribes to the audience, even by someone like Mozart, who was at the time of writing those lines, aged twenty. Where does this power come from?

To understand this, we ought to look again at the developmental line, precisely at the stage when the language is acquired. When a human being masters language, it is an outstanding ac-

complishment, maybe one of the most important crossroads of psychical development. On these issues, Daniel Stern, a well-known developmental psychoanalyst, says the following: “But in fact, language is a double-edged sword. It also makes some parts of our experience less shareable with ourselves and with others. It drives a wedge between two simultaneous forms of interpersonal experience: as it is lived and as it is verbally represented” (Stern, 1998: 162, italics ours).

We can state that by music, we emphasize the experience that is lived, which stands below the verbally represented. One another known psychoanalyst from the British independent school of psychoanalysis, Donald Winnicott, speaks about the “true self” and the “false self” (Winnicott, 1955, 1956, 1960, 1971). This division does not imply the category of value or morality. When we experience something, we activate our core, true self, and when we verbally refer to experience, we operate in the domain of the “false self”. The true self needs to be mirrored, confirmed or applauded and such needs are omnipresent throughout one’s life.

We believe that the act of performing music represents in its pure form the exposition of one’s true self for the mirroring of the significant other, precisely the audience. The score written by the composer is, from this point of view, something that is the most intimate, the experience organized as it is lived, and not verbally represented (the idea captured by the expression “absolute music”). It is the true self that is utterly vulnerable, and dependent on the mercy of the audience, which may confirm it, deny it, or – as we saw in Mozart’s letter – ignore it.

Conclusion

In conclusion, we will outline some recommendations concerning the optimal development of the personality of musicians. The cultivation of the fantasy and free-floating between primary and secondary processes is of marked importance. The ego strength will permit the mastering of performing anxiety, and the proper exposure of the true self of young musician needs to be confirmed by true, and not false

mirroring. The education should not be one-sided, focused solely on musical performance, concerts, competitions, awards, etc. but ought to engage with the development of the personality *in toto*. In a way in which the Ancient Greeks described the personality as the equilateral triangle consisting of μαθηματική, γυμναστική and μουσική (intellect, body, emotion) in harmony.

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Psychology of Music Performance

Memorizing the Contemporary Piano Piece of Music: The Effects of the Formal Structure, Pianist's Segmentation, and Technical Difficulties

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Abstract

The aim of this study was to examine the process of preparing a contemporary piece for performing at an international competition for young musicians. The pianist, a second-year student at a music high school, had recorded her practice of the Fourth Study for Piano (*Allegro Vivace*) by Boris Papandopulo. Thirty-two recorded practice sessions were transcribed and analyzed with regards to five learning periods: section-by-section, practicing the whole, tightening fluency, memorization and polishing. We examined the effects of the formal structure, the pianist's segmentation of the piece in addition to the formal structure, and technical difficulties on the amount of practicing in five learning periods. The results showed that practice segments started and/or stopped more often on structural bars and on bars marked by the pianist herself. The effect of the pianist's segmentation was greater than that of the formal structure in four learning periods. The results also showed that the pianist used repetitions as a practice strategy consistently during the learning process: repeating of difficult bars decreased as the practice progressed, however, repeating structural bars persisted until the end of preparing the piece for performing at a competition for young pianists. The results of this study contribute to the findings previously reported in the literature with students enrolled as participants and confirm that similar strategies are used when memorizing compositions of traditional and contemporary repertoire.

Introduction

Longitudinal case studies of concert and jazz pianists (Chaffin & Imreh, 1997, 2002; Noice, Jeffrey, Noice, & Chaffin, 2008), cellists (Chaffin & Lisboa, 2008; Chaffin, Lisboa, Logan, & Begosh, 2010; Lisboa, Chaffin, Schiaroli, & Barrera,

2004), singers and conductors (Ginsborg, Chaffin, & Nicholson, 2006a, 2006b) have shown that professional musicians encode music scores in terms of the formal structure of a piece of music from the earliest stages of practicing. The studies revealed that experienced musicians set different performance cues (structural, expressive, interpretative, basic) within the hierarchical organization of the piece and think about them repeatedly during practice, thus strengthening the associations with different places in the music scores. By relying on performance cues, musicians direct their attention to different aspects of the music that have to be learned, memorized, and performed. The deliberate setting of performance cues (or landmarks) within the hierarchical organization of the piece of music leads to the formation of an easily retrievable mental map once the piece is memorized. The mental map allows the musicians to monitor their own performances and to recover from mistakes or memory failures if they occur.

Deliberate encoding of music scores in terms of the formal structure develops as a function of expertise (Williamon & Egner, 2004). Williamon and Valentine (2002) examined practicing by piano students at different levels of proficiency. Their results showed that all pianists, regardless of the level of proficiency, segmented the compositions by J. S. Bach that were assigned to them for the purposes of the study into meaningful sections. When the segmentations were influenced by piano teachers, they were congruent with formal structures of the pieces of music. When segmentations were made exclusively by piano students themselves

they were not necessarily in accordance with the formal structure. Although the identification of the formal structure of the piece varied between the piano students, the results showed that they used the structure of their segmentations in the course of practice. More precisely, they started and stopped their practice increasingly on “structural” bars and decreasingly on difficult bars across the learning process. Moreover, the frequency of starts and stops increased on “structural” bars and decreased on difficult bars systematically with increases in the level of skill: more experienced piano students relied on their structure earlier in the process of practicing and performed more successfully. A case study with one advanced piano student that prepared Prelude and Fugue in e-minor by J. S. Bach (Well-Tempered Clavier I, BWV 851) for a memorized performance showed that the pianist used the formal structure of the piece in order to organize her practicing and memorizing as more experienced musicians do (Žauhar & Bajšanski, 2012). The use of the formal structure during practice and memorization reflects the level of musical understanding.

To date, studies that examined memorizing of the traditional repertoire (e.g., Chaffin & Imreh, 1997, 2002; Chaffin & Lisboa, 2008; Williamon & Valentine, 2002; Žauhar & Bajšanski, 2012) and studies that examined memorizing of the contemporary repertoire (e.g., Chueke & Chaffin, 2016; Ginsborg & Chaffin, 2011; Ginsborg, Chaffin, & Demos, 2012; Ginsborg et al., 2006a, 2006b) showed that musicians use similar practice and memorization strategies. In the study by Jónasson and Lisboa (2016), advanced guitar students memorized a contemporary piece composed for the purposes of the study and predominantly used segmentation as the main practice strategy. Memorization of contemporary pieces reflected the level of proficiency as observed in the studies with the traditional repertoire. Tsintzou and Theodorakis (2008) found that an expert in contemporary piano music segmented the atonal piece more efficiently and learned the piece faster than piano teachers and piano students. However, if the music is free of form, as Schonberg's Op. 11, No. 3 examined

in the study by Chueke and Chaffin (2016), the performer is the one that has to “develop a musical story to serve as a mental map” (p. 253). The results of the case study by Soares (2015) showed that using structural landmarks can be helpful even with the very complex atonal structure. However, he pointed out that the correspondence to the formal structure of the piece of music, in that case, can be limited and that a wider range of different musical dimensions is used in order to form a mental representation.

In this study, we examined the process of preparing a contemporary piece with the formal structure within the frame of classical traditions enriched with the use of polytonality and a wider range of harmonies. For this purpose, one piano student with nine years of formal musical training prepared the Fourth Study for Piano by the Croatian composer Boris Papandopulo for participation at an international competition for young musicians.

We examined the dimensions on which practicing of the “lilting waltz-scherzo in which Papandopulo explores various metric stresses against gently oscillating harmonies” (Everett, 2011: 4) was based. More precisely, we examined the effects of the formal structure, the pianist's segmentation of the piece in addition to the formal structure, and technical difficulties on the amount of practicing. The amount of starts, stops, and repetitions on different points in the music score were expected to reveal the points to which the pianist directed her attention during the process of preparing the piece for performance at the competition. We hypothesized that the pianist would rely, to some extent, on the formal structure of the piece during practice and especially during memorization. However, we expected that the pianist would rely on her own segmentation in addition to the formal structure during the whole learning process, given that she identified sections that were meaningful for her. In general, we expected that the use of structural bars in order to organize practice would increase, and using difficult bars would decrease, with the progress of the learning process as observed in other studies (e.g., Williamon & Valentine, 2002).

Method

The Pianist

A second-year student (age = 16) at the music high school Ivan Matetić Ronjgov, Rijeka, Croatia, participated in the study. The student regularly performs in public and participates in national and international competitions. At the time of her participation in the study, she had nine years of formal musical training.

The Piece of Music

The Fourth Study for Piano, composed in 1956, is part of the cycle Eight Studies for piano that reflect different musical styles from the baroque toccata to the contemporary dance forms of tango and blues (Kovacic, 1996). This cycle is characterized by harmony, aesthetics and rhythms present in jazz and pop music. The influence of folk music is also present. Furthermore, the studies are characterized by polytonality and are technically demanding (Detoni, 2008). They are “full of humorous, melodic, harmonic, and rhythmic turns” (Kovacic, 1996: 101). The Eight Studies do not represent a formal unity, instead, each study is one characteristic miniature exploring the sound possibilities of the piano. Therefore, they can be performed independently (Kovacic, 1996). Studies with fast tempi require skillful piano technique, and studies with slower tempi show different moods (Detoni, 2008). This cycle is considered Papandopulo’s best work for solo piano (Kovacic, 1996).

The Fourth Study for Piano (*Allegro Vivace*, 3/8) is a “joyous and optimistic scherzo of a waltz” (Detoni, 2008: 10) with a touch of parody on the waltz form. The traditional structure of the piece is broadened with the use of polytonality and a wider range of harmonies. In this study, the accompaniment is given great importance, which paradoxically makes it the main theme of the piece. The melody, on the other hand, emerges periodically, and parts of the melody, colored differently each time, sequentially repeat adding even more parody to the piece (Detoni, 2008). The performance of the Study requires sharp accentuation and precise

control of the tempo. The Study has 153 bars, and it takes about 1 minute and 30 seconds to perform.

Procedure

The pianist was required to learn the Fourth Study for Piano (*Allegro Vivace*) by Boris Papandopulo. This piece of music was part of a repertoire assigned by her piano teacher for the international competition for young musicians. Each practice session was recorded by the pianist. Furthermore, after each practice session, the pianist fulfilled the practicing diary (date, time, description of the practice session). After the completion of the practice process, the pianist divided the practice sessions into five learning periods: section-by-section (sessions 1 to 4), practicing the whole (sessions 5 to 13), tightening fluency (sessions 14 to 19), memorization (sessions 20 to 25) and polishing (sessions 26 to 32).

During the practice process, the pianist determined the bars that were technically demanding for her. After the competition, the pianist was asked to segment the piece and mark in the score the bars on which she relied during the process of practicing in order to make the performance successful.

Data Preparation and Variables

Thirty-two recorded practice sessions (of an average duration of 30 minutes) were transcribed following the transcripts introduced by Chaffin and Imreh (1997). The number of starts, stops, and repetitions of each bar were counted for each session. One part of the transcript from practice session 1 (bars 1–20) is shown in Figure 1.

The effects of the formal structure, the pianist’s segmentation of the piece in addition to the formal structure, and technical difficulties on the amount of practicing (starts, stops, and repetitions) were examined in five learning periods. It is important to note that starts included deliberate starting at different bars, and that stops included deliberate stopping at different bars within the piece of music. Stops caused by errors were not included in the analysis.

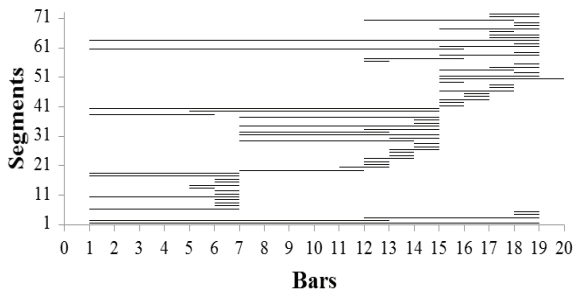


Figure 1. One part of the transcript from practice session 1.

The structural bars (beginnings and ends of sections) were determined by the second author who analyzed the formal structure of the piece for the purpose of this research.

The pianist's segmentation made after the competition matched the formal structure only to some extent ($r = .51$) because she did not mark all structural bars as relevant, however, she marked some additional bars as relevant. Only those additional bars were considered when analyzing the effect of the pianist's segmentation of the piece in addition to the formal structure.

Difficult bars were determined by the pianist during the process of practicing.

Results

In order to investigate the effects of the formal structure, the pianist's segmentation of the piece in addition to the formal structure, and technical difficulties on the amount of practicing in five learning periods multiple regression analyses were performed. When analyzing starts, the first bar of the piece was not included in the analysis, and when analyzing stops, the last bar of the piece was not included in the analysis. The results are shown in Table 1. The predictors (the formal structure, the pianist's segmentation, and technical difficulties) together accounted for 10% to 43% of the variation in the amount of practicing (that is, starts, repetitions, and stops).

The analyses showed that repeating was used as a practice strategy during the whole process of practicing. In each learning period, repetitions were predicted by technical difficulties and the beginnings of the sections within the formal

structure. When practicing the whole and tightening fluency, repetitions were additionally predicted by the beginnings of the sections within the pianist's segmentation. In the final learning period, repetitions were additionally predicted by the endings of the sections within the formal structure.

As expected, technical difficulties were the main predictor of repetitions in the initial stages of practicing, and the contribution of technical difficulties decreased with the progress of practice within the first three learning periods. Still, repeating technically difficult bars persisted until the end of practicing as well as repeating structural bars.

With regard to the number of starts and stops, the analyses in general showed that the practice segments started and/or stopped more often on structural bars and on bars marked by the pianist herself than on other bars.

More precisely, in the section-by-section learning period, the beginnings of the sections predicted the number of starts, and the endings of the sections predicted the number of stops. Moreover, the starts were predicted by technical difficulties. The observed results suggest that the pianist segmented the piece and practiced isolated sections.

When practicing the whole, starts were again predicted by the beginnings of the sections and by technical difficulties. In this learning period, the endings of the sections within the formal structure significantly predicted starts, too. Interestingly, stops were predicted only by the beginnings of the sections marked by the pianist. The observed results indicate that the pianist segmented the piece during practice and used different starting points. Moreover, the use of the beginnings of the sections as starting and stopping places suggests that the pianist linked the segments.

During tightening fluency, starts and stops were predicted by the beginnings of sections within the pianist's segmentation showing that the pianist continued to practice by linking the segments as in the previous learning period. Stops were additionally predicted by the end-

Table 1. Results of multiple regression analyses for five learning periods.

Predictor variables	Section-by-section			Practicing the whole			Tightening fluency			Memorization			Polishing		
	Starts	Rep.	Stops	Starts	Rep.	Stops	Starts	Rep.	Stops	Starts	Rep.	Stops	Starts	Rep.	Stops
TD^a	.19**	.57***	.10	.15*	.37***	-.04	.11	.27***	-.10	.04	.23**	-.08	.09	.28***	.09
	FS^b														
Begin section	.31***	.16*	.03	.22**	.23**	.01	.02	.22**	.04	.27***	.19*	.01	.36***	.20**	.33***
End section	.00	.11	.36***	.16*	.06	.07	-.05	.08	.14*	-.07	.08	.27***	.03	.24**	.15
	PS^c														
Begin section	.43***	.09	.05	.58**	.18*	.44***	.63***	.19*	.45**	.51***	.02	.26***	.32***	.05	.03
End section	-.04	-.08	.20*	-.03	-.10	.06	-.02	-.07	.20**	.08	-.11	.24**	-.03	-.08	-.01
R2	.31	.36	.18	.44	.22	.20	.41	.16	.27	.33	.10	.21	.23	.17	.13
F(5,146)	13.09	16.35	6.45	22.89	8.21	7.41	20.00	5.55	10.78	14.26	3.26	7.59	8.64	5.85	4.30
p	.001	.001	.001	.001	.001	.001	.001	.001	.001	.001	.01	.001	.001	.001	.001

^a TD = Technical difficulties; ^b FS = Formal structure; ^c PS = Pianist's segmentation in addition to the formal structure; * $p < .05$; ** $p < .01$; *** $p < .001$.

ings of sections within both, the pianist's segmentation and the formal structure. Interestingly, during tightening fluency, the pianist did not use the beginnings of sections within the formal structure as starting places.

However, during memorization, starts were predicted by the beginnings and stops by the endings of the sections pointing to the use of the formal structure and the pianist's segmentation as meaningful units when deliberately preparing the piece for the performance. Moreover, as in the previous stage, stops were predicted additionally by beginnings and endings of the sections within the pianist's segmentation.

In all four learning periods described so far, beginnings of sections within the pianist's segmentation were the main predictors of the number of starts. This result suggests that the pianist relied more often on her own segmentation when organizing her practice.

Finally, during polishing, starts were predicted by the beginnings of the sections, and both the formal structure and pianist's segmentation, equally contributed. In this final learning period, stops were predicted by the beginnings of sections within the formal structure, too, showing that the pianist strengthened practicing the sections by starting and stopping at the same places.

In sum, the results showed that the pianist moderately relied on the formal structure during practice, instead, she used her own segmentation in order to organize her practice more often. Also, the pianist used repetition as a practice strategy in each stage of preparing for performance.

Discussion

The amount of practice of different points within a musical composition, provide behavioral evidence about the aspects of music that were in the focus of musicians' attention during practice. Previous studies have shown that starting and stopping at structural bars provide a reliable and easy retrievable mental representation of the piece of music (e.g., Chaffin, 2007; Chaffin & Imreh, 1997, 2002).

In this study, we investigated the effects of the formal structure, the pianist's segmentation of the piece in addition to the formal structure, and technical difficulties on the amount of practicing during five learning periods.

In accordance with earlier studies with students practicing and memorizing compositions from the traditional (Williamon & Valentine, 2002) or contemporary (Jónasson & Lisboa, 2016) repertoire, this study showed that the pianist used structural bars to organize her practice. In this study, we included two structural levels as predictor variables: the aspects of the formal structure of the piece, and the pianist's segmentation in addition to the formal structure. We observed that the pianist used the formal structure moderately, and relied predominantly on her own segmentation. The use of structural bars is observed in each learning period, however, different practice strategies can be identified in different learning periods. For example, practicing isolated sections can be observed in the section-by-section learning period, and linking the segments can be observed in the following learning stage (practicing the whole). Besides using bars within the formal structure and her own segmentation as starting and stopping points, the pianist started more often on technically difficult bars. As reported earlier by Williamon and Valentine (2002), starting with difficult bars decreased through the learning process, and the results of this study showed that difficult bars did not predict starts from the third learning period onwards.

As observed in earlier studies with professional pianists (e.g., Chaffin & Imreh, 2002) and advanced piano students (Žauhar & Bajšanski, 2012), the results of this study showed that the piano student repeated technically difficult bars more often in the earlier stages of practicing. Repeating difficult bars decreased within the first three stages of practicing. However, the pianist in this study retained the strategy of repeating difficult bars in the stages of memorizing and polishing, which can also be observed in previous studies (e.g., Chaffin, 2007; Miklaszewski, 1995; Žauhar & Bajšanski, 2012), given that some difficult bars require continuous practic-

ing and over-learning in order to be performed properly.

Contrary to the results of previous studies, the pianist used the strategy of repeating structural bars consistently in each learning period. Moreover, while practicing the whole and tightening fluency, the pianist repeated more often the bars marked as relevant in her own segmentation. Repeating the beginnings of sections within the formal structure and within the pianist's segmentation suggest the use of the strategy of practicing those bars out of the context of the sections as meaningful units. Although practicing different starting points and segmenting the piece in smaller sections is a useful practice strategy, repeating only the beginnings of sections, without integrating them within the context, could be an ineffective strategy because deeper analysis of the music material is missing. With an increase in the level of proficiency, there is an increase in repeating longer sections (Gruson, 1988; Hallam, 1997).

In the third learning period, during tightening fluency, the pianist relied predominantly on her own segmentation when starting and stopping the practice segments. The use of both the formal structure and additional segmentation is observed during memorization, suggesting that the pianist organized her memorizing by defining multiple starting and stopping places as other students (Williamon & Valentine, 2002; Žauhar & Bajšanski, 2012) and more experienced musicians do (e.g., Chaffin & Imreh, 2002). In the final polishing stage, the influence of the pianist's segmentation is observed only in selecting beginnings of sections as starting points, whereas the influence of the formal structure is observed in all aspects of practicing: starts, repetitions, and stops, suggesting the importance of the formal structure in strengthening memory for performance at the competition.

In sum, the results show that the pianist directed her attention to different aspects of the piece of music and used different learning strategies during the preparation for a memorized performance. This study provides an observation of memorization of a contemporary piece by Boris Papandopulo expanding the range of compositions examined to date and confirming

that similar strategies are used when practicing and memorizing compositions of traditional and contemporary repertoire.

In this study, the pianist used the segmentation of the composition that was meaningful for her. In order for the young pianists to gain benefits from the use of the formal structure, detailed, explicit instruction about the usefulness of deliberate encoding of the piece of music with regards to its formal structure would be needed. Providing explicit instruction about the formal structure could encourage the pianist to improve her own segmentation and deepen the analysis of the piece. Moreover, the explicit instruction about the use of performance cues in the process of practicing, and implementing the use of protocols designed in order to encourage self-study could be useful for students to broaden the insight into their own learning and memorization processes (Chaffin, Demos, & Crawford, 2009; Ginsborg & Chaffin, 2011). More recently, Gerling and Dos Santos (2017) showed that young musicians at different levels of proficiency readily accepted the use of PC protocols during the practice of compositions of different musical styles. They showed that training in PC protocols can result in the acquisition of a meaningful strategy. With greater involvement in the process of practicing, musical understanding could be improved, as well as the efficiency of the process of preparing the piece for a memorized performance and the efficiency of the performance itself.

Conclusion

The results of the study mostly confirmed previous findings and contributed to the results previously reported in the literature with students enrolled as participants.

This study showed that the pianist used repetitions as a practice strategy consistently during the process of preparing the piece for performing at the competition for young pianists. Also, the pianist predominantly used her own segmentation to organize her practice. Although the effects of the formal structure were also observed, detailed, explicit instruction about the usefulness of deliberate encoding of the piece of

music with regards to its formal structure would be needed in order for the young pianists to gain benefits from the use of the formal structure as a reliable retrieval scheme.

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Perception of the Idiosyncrasy in Performances of Debussy's *Syrinx* for Solo Flute

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Abstract

Interpretation of a musical piece and performance expression have been intriguing issues for numbers of authors. Guided by the thought that “performances create meaning in relation to other performances, and not just in relation to works” (Cook, 2013: 224), the aim of this research was to investigate the perception of the character of Claude Debussy's (1862–1918) *Syrinx* for solo flute (1913), during listening interpretations of three, world renowned, flutists (James Galway [1939], Emmanuel Pahud [1970], and Jean-Pierre Rampal [1922–2000]). We examined whether different performances can cause significantly different impressions about the same piece's character among listeners and which elements of musical interpretation (tempo, dynamics, timbre, vibrato, articulation) (do not) condition that. Besides determination (Likert scale 1–5) of these parameters in the questionnaire, participants – without insight into the score and any given information about the title, the author of the work, and performers – proposed their composition titles and program notes. The sample consisted of 103 participants, students of the Faculty of Music (Belgrade, Serbia) from different departments, levels, and years of study. The results indicate that differences among interpretations are statistically significant – for example: 1) during Pahud's interpretation, participants experienced *pastoral* character of the work to a greater degree than during Rampal's interpretation ($t[97] = 7.14, p < .001$), 2) Rampal's performance presented the *restless* character of the work on a larger scale than Galway's ($t[99] = -6.26, p < .001$) and Pahud's ($t[99] = -6.26, p < .001$), 3) regarding Galway's performance, students proposed titles that can be mostly classified into the category of *Nature* (35.5%). In comparison, the titles given during Pahud's (35.1%) and Rampal's (33%) performance can mostly be classified into the category of *Feelings*, whereby, in Pahud's case titles *Largely corresponding* to the content of the Pan myth, and –

therefore – the “program” of Debussy's work (34%), while, in the case of Rampal's interpretation titles mostly fall into the *Not corresponding* to the content of myth category (31.9%). All the elements of musical interpretation are related to the listeners' experience of the work's character(s). This research confirms the assumption of the idiosyncrasy of “musically expressive performance” (Zijl and Sloboda, 2010: 197) and the vital role of the performer in the triad *composer – performer – listener*.

Introduction

Performer's role, interpretation of a musical piece, and performance expression have been intriguing issues for numbers of authors. There is a question whether a performer is “only” an intermediary between the score and the listener, presenting the musical flow in a way that is the closest to the composer's ideas, or performer should – by inputting his own creative conception into the already present meaning of the work – become its co-creator. Jean-Jacques Nattiez believes that the performer can be “seen as playing an intermediary, but decisive role between the written score – the *trace* of composer's intentions – and the listener, and in this sense is the first to perceive the work, that is, to make a series of choices (underlined M. T.) on the basis of the composer's text” (Nattiez, 1982: 320). Choosing, or “giving prominence to some expressive rules over others is one example of the way in which expression can become idiosyncratic or personal to the performer [underlined M. T.]” (Lehmann, Sloboda, and Woody, 2007: 94).

The famous French flutist, Michel Debost, wrote: “Literally speaking, the word *interpre-*

tation has the meaning of *translation*, the performer or interpreter being the *vehicle* [underlined M. T.] between the silent signs on the page and their coming alive as sound and music. Interpretation is also a personal and variable experience, an image of the composer's soul, as seen through the prism of the interpreter's thoughts and emotions" (Debost, 2002: 113). Interpretation is, thus, characterized by both *internal* (for example, emotions or wanting to express something personal) and *external* (for example, musical style, the structure of the work or composer's intentions) factors (Juslin, 2003: 276). Juslin claims that "expression is largely what makes music performance worthwhile" (Juslin, 2003: 274).

This research was guided by Nicholas Cook's thought that "performances create meaning in relation to other performances, and not just in relation to works" (Cook, 2013: 224). Besides the mentioned two elements, we can also assume a third one – the possibility that the same performance of the specified piece can be experienced in a different way among different listeners.

Aims

The aim of this empirical research was to investigate the perception of the character of the same piece, Claude Debussy's (1862–1918) *Syrinx* for solo flute (1913), during listening interpretations of three, world renowned, flutists – James Galway (1939), Emmanuel Pahud (1970), and Jean-Pierre Rampal (1922–2000), respectively. Debussy's *Syrinx* is the capital (solo) flute work, based on "musical" myth about the god Pan and the nymph Syrinx, which is in the close relationship with origins of the flute – not only as the musical instrument *per se*, but also with its archetypal (pastoral and lyrical) sound identity.

Monelle wrote that the instrument syrinx or *pan-pipes* is connected with the pastoral theme (Monelle, 2006: 208). It is worth mentioning that "the erotic power of the syrinx, its ability to seduce with its floating melody, constitutes a dominating theme in the works of Debussy"

(McQuinn, 2003: 126), such as the well-known *Prélude à l'après-midi d'un faune* (1892–1894) with a prominent flute (Faun's/Pan's) solo.

Considering the clearly defined mythical, i. e. *pastoral* "program" of the work, we examined: 1) whether different "musically expressive performance[s]" (Zijl and Sloboda, 2010: 197) of the same Debussy's piece can cause significantly different impressions about its character among listeners, 2) which elements of musical interpretation (tempo, dynamics, timbre, vibrato, articulation) (do not) relate to these differences, and 3) potential differences in responses between those respondents who already knew the work in comparison to those who heard it for the first time during the research.

Method

Participants

The sample consisted of 103 participants (73 female and 30 male ones), students of the Faculty of Music, University of Arts in Belgrade (Serbia), from different departments (mostly from piano [32.4%], music pedagogy and music theory departments [29.4%]; only 7.8% participants were musicians who [used to] play flute), levels (bachelor [77.5%], M.A. [14.7%], and Ph.D. [7.8%]), and years (most of them were on the final year of bachelor studies [$n = 44$]). The majority of participants self-reported that they have listened to flute music, not on purpose, but thanks to the random opportunities ($M = 3.10$, $SD = 1.27$) giving the answers in the questionnaire by intuition, during the listening ($M = 4.74$, $SD = 0.89$), opposed to those participants who had already existing knowledge about Debussy's piece ($M = 1.62$, $SD = 1.19$).

Materials

Questionnaire. The three-part questionnaire with 18 (opened and closed type) questions was the only one measurement instrument during the research. After responding to the questions referring to the general variables (gender, age, department, level, and year of study), participants were asked to self-report their experi-

ence with playing the flute and listening to the flute music (5 questions). Then, without insight into the score and any given information about the title, the author of the work and performers, they approached to the listening assignments (9 questions), and, finally, pointed out how they made their answer decisions regarding previous questions (4 questions). The duration of the procedure was about thirty-five minutes.

Listening material. Interpretations of three recognized exponents of the French Flute School – James Galway, notably Irish flute virtuoso and former principal flutist in Berlin Philharmonic Orchestra, Emmanuel Pahud who is considered as the best flutist of the day, and Jean-Pierre Rampal, who as the former flute professor at the Paris Conservatoire and concert flutist contributed to the renewal of the flute’s “international popularity it had in the 18th century as a solo instrument” (Maclagan, 2009: 143) was quite an understandable choice. It was conditioned by the desire of the author to create the opportunity for participants to hear the performances of the renewed flutists, which are, at the same time, different in certain interpretational parameters. For the purpose of 1) avoiding even the implicit suggestions about potential differentiation in performances and 2) better concentration of respondents, exclusively audio examples of the live performances (Galway’s from 1989, Pahud’s from 2010, and Rampal’s from the 1957 year) were released.

Procedure

Characters and the elements of musical interpretation. During (or after) listening to the individual interpretations, participants evaluated the manifestation level (Likert scale 1–5 [1 = completely disagree and 5 = completely agree]) of each of the fifteen characters (*longing, enthusiastic, gracefully, melancholic, restless, gently, decisively, seriously, pastoral, zesty, playful, dreamy, passionately, mysteriously, lonely*) offered by the alphabetical order – according to the Serbian language – in the questionnaire. Namely, sixty characters of a wider range, extracted from the reference vocabularies of musical terms (Peričić, 2008; Тајчевић, 1997;

Despić, 2011) and Monelle’s book *The Musical Topic – Hunt, Military and Pastoral* (2006) were firstly grouped into five categories consisted of similar character adjectives. Then we reached for intersubjective verifiability of four independent assessors who reduced overall number to optimal, fifteen characters, through selection – according to their listening impressions about the Debussy’s work in the context of mentioned interpretations – of three paradigmatic characters from each category. We believed that this number is “optimal” because it cannot lead to participants’ fatigue during the research, while, on the other hand, leaves enough space for “subtle” differentiation within answers.

It is worth noting that *pastoral* character was not highlighted in the questionnaire in any way. Since “the pastoral world is full of love and melancholy” (Monelle, 2006: 196), such characters as *longing, gracefully, melancholic, gently, dreamy, mysteriously, and lonely* are also related to the content of the myth about Pan and Syrinx.

Subsequently, participants determined the relationship between the recognized degree of characters’ manifestation and the key elements/components of performance expression (Clarke, 2005: 24), such as tempo (as well as the rhythm and meter), dynamics, timbre, vibrato, and articulation (as well as accentuation).

Composing the titles of the work. During or after listening, participants proposed their title for the piece they’ve heard based on their overall experience, regarding each performance in particular. Additionally, they wrote short program notes in accordance with the specified title. We would not explicate program notes on this occasion, due to the provided space for the proceeding text.

Data Processing

Statistical processing of the data was performed in the computer program SPSS Statistics, and the results were obtained by quantitative and qualitative data analyses, descriptive analysis, *t*-test, correlative data analysis, and analysis of variance for repeated measurements.

Results

Analysis of the Characters and the Elements of Musical Interpretation

The interpretation of James Galway mostly emphasizes the *pastoral* ($M = 3.53$, $SE = 0.12$) and *mysteriously* ($M = 3.52$, $SE = 0.12$) character of the work ($M = 3.53$, $SE = 0.12$), the interpretation of Pahud *mysteriously* ($M = 4.15$, $SE =$

0.09), *playful*, and *dreamy* ($M = 3.91$, $SE = 0.1$), *gently* ($M = 3.72$, $SE = 0.11$) as well as *pastoral* character ($M = 3.68$, $SE = 0.12$), whereas Ram-pal's interpretation created impression of *restless* ($M = 3.9$, $SE = 0.11$) and *decisively* character ($M = 3.71$, $SE = 0.12$) (Table 1). The results indicate that differences between interpretations are statistically significant in terms of, for example: (1) *pastoral* character – during Pahud's interpreta-

Table 1. Analysis of the characters.

	The first performance J. Galway	The second performance E. Pahud	The third performance J. P. Ram-pal	Comparison of the three performances (1 st vs 2 nd ; 1 st vs 3 rd ; 2 nd vs 3 rd)			Significance (overall)
	<i>M</i> (<i>SE</i>)	<i>M</i> (<i>SE</i>)	<i>M</i> (<i>SE</i>)	1 st vs 2 nd	1 st vs 3 rd	2 nd vs 3 rd	
Longing	2.02 (0.1)	3.35 (0.12)	2.04 (0.09)	2 > 1*	1 > 3*	2 > 3*	$F(2,186) = 50.806$, $p < .001$
Enthusi- astic	2.02 (0.1)	1.91 (0.1)	2.98 (0.12)	n.s.	3 > 1*	3 > 2*	$F(2,190) = 40.408$, $p < .001$
Gracefully	2.18 (0.12)	2.51 (0.13)	2.17 (0.11)	n.s.	n.s.	n.s.	$F(2,188) = 3.453$, $p = .034$
Melan- cholic	2.98 (0.12)	3.57 (0.11)	2.21 (0.11)	2 > 1*	1 > 3*	2 > 3*	$F(2,186) = 64.118$, $p < .001$
Restless	2.95 (0.13)	2.23 (0.11)	3.9 (0.11)	1 > 2*	3 > 1*	3 > 2*	$F(2,194) = 71.082$, $p < .001$
Gently	2.8 (0.12)	3.72 (0.11)	1.93 (0.09)	2 > 1*	1 > 3*	2 > 3*	$F(2,190) = 101.280$, $p < .001$
Decisively	2.62 (0.12)	2.3 (0.11)	3.71 (0.12)	n.s.	3 > 1*	3 > 2*	$F(2,202) = 55.339$, $p < .001$
Seriously	2,67 (0.11)	2.56 (0.11)	3.06 (0.12)	n.s.	n.s.	3 > 2*	$F(2,188) = 7.224$, $p = .001$
Pastoral	3.53 (0.12)	3.68 (0.12)	2.69 (0.12)	n.s.	1 > 3*	2 > 3*	$F(2,192) = 29.490$, $p < .001$
Zestful	2.47 (0.12)	2.34 (0.12)	3.13 (0.12)	n.s.	3 > 1*	3 > 2*	$F(2,192) = 17.249$, $p < .001$
Playful	2.95 (0.12)	3.91 (0.1)	2.03 (0.1)	2 > 1*	1 > 3*	2 > 3*	$F(2,194) = 21.882$, $p < .001$
Dreamy	2.95 (0.12)	3.91 (0.1)	2.03 (0.1)	2 > 1*	1 > 3*	2 > 3*	$F(2,192) = 105.159$, $p < .001$
Passion- ately	2.51 (0.12)	2.53 (0.13)	2.66 (0.13)	n.s.	n.s.	n.s.	$F(2,186) = 0.535$, $p = .587$
Mysteri- ously	3.52 (0.12)	4.15 (0.09)	2.49 (0.12)	2 > 1*	1 > 3*	2 > 3*	$F(2,194) = 83.824$, $p < .001$
Lonely	3.21 (0.12)	3.6 (0.12)	2.2 (0.12)	n.s.	1 > 3*	2 > 3*	$F(2,196) = 52.392$, $p < .001$

tion, participants experienced *pastoral* character of the work to a greater degree than during Rampal's interpretation ($t[97] = 7.14, p < .001$) or (2) *restless* character – Rampal's performance presented *restless* character of the work on a larger scale than Galway's and Pahud's ($t[99] = -6.26, p < .001$).

During Galway's interpretation, listeners have recognized the timbre of the sound and vibrato ($M = 4.29, SE = 0.07$) as elements of interpretation, which are on a larger scale related to their experience of chosen musical characters. In the case of Pahud's performance, there is the connection of dynamics and specific characters ($M = 4.47, SE = 0.08$), while in the case of Rampal's playing we can see the relationship between articulation (and accentuation) and specific characters ($M = 3.98, SE = 0.1$). However, almost all of the arithmetic means are higher than 3.5 (Table 2). Therefore, we can conclude that every parameter of interpretation is notably related to the listeners' experience of the work's character(s).

Results of correlative data analysis showed that timbre and vibrato are correlated with *longing* ($r = .352, p < .001$) and *passionately* ($r = .265,$

$p = .009$) characters, while articulation with *enthusiastic* ($r = .286, p = .004$), *zestful* ($r = .281, p = .005$), and *playful* ($r = .263, p = .008$) characters during the first performance. Dynamics showed to be significantly correlated with *gently* ($r = .313, p = .001$), *pastoral* ($r = .367, p = .000$), and *mysteriously* ($r = .265, p = .008$), articulation with *decisively* ($r = .271, p = .006$), while tempo with *pastoral* character ($r = .307, p = .002$) during the second performance. Tempo is significantly related to *decisively* ($r = .262, p = .008$) and *playful* ($r = .316, p = .001$) characters, and articulation with *playful* character ($r = .261, p = .009$) during the third performance.

Analysis of the Piece's Titles Suggested by the Listeners

Since students gave various titles to the Debussy's work, during the data processing, they were classified in two ways:

1. considering the content of the title itself (five categories):
 - A. *Pastoral* titles which include references to the idyllic, mythical nature, shepherds or mythical beings – *The Nymph; A Day in a Village; Pastoral; The*

Table 2. Analysis of the elements of interpretation.

The elements of interpretation	The first performance J. Galway	The second performance E. Pahud	The third performance J. P. Rampal	Comparison of the three performances			Significance (overall)
	M (SE)	M (SE)	M (SE)	1 st vs 2 nd	1 st vs 3 rd	2 nd vs 3 rd	
Tempo	3.46 (0.09)	3.99 (0.1)	3.88 (0.12)	2 > 1*	n.s.	n.s.	$F(2,196) = 10.866, p < .001$
Dynamics	3.52 (0.1)	4.47 (0.08)	3.48 (0.11)	2 > 1*	n.s.	2 > 3*	$F(2,198) = 38.257, p < .001$
Timbre and Vibrato	4.29 (0.07)	4.06 (0.09)	3.5 (0.12)	n.s.	1 > 3*	2 > 3*	$F(2,198) = 20.223, p < .001$
Articulation	3.59 (0.1)	3.74 (0.1)	3.98 (0.1)	n.s.	n.s.	n.s.	$F(2,196) = 6.305, p = .002$

Dance of the Forest Fairy for Solo Flute; Awakening of Nature; Awakening of the Confused Shepherd; Idyll, etc.;

- B. *Nature* titles refer to the nature in the broad sense, including natural phenomena, animals, and the general atmosphere of/in nature – *Meadow in a Spring; The Forest Brook; A Day in a Forest; The Turbulent Sea; A Foggy Day; The Morning; Autumn; The Swan; Nature; Winter, etc.;*
- C. *Feelings* titles indicate the description of conditions and moods – *Love Longing; Daydreaming; Agony; Hopelessness; Expectation; Decision; Mysterious Melancholy; Nostalgia; Falling in Love, etc.;*
- D. *Actions* titles – *Chasing; Rushing; The Flight; Wanderings; Hunting; Music Playing on the Balcony, etc.;*
- E. *Distant (creative) associations* titles are without specific program conception and relation with the Debussy's composition, refereeing mostly to the remote landscapes, cities or countries – *Nocturno; Etude; Picture; Without Program Associations; Industry; Living in the Forests of America; Chinese Warrior; Japanese Well, etc.*
2. considering the relationship of the given title with the content of the myth about Pan and Syrinx (four categories):
- A. *Not corresponding* to the content of the myth titles – *Sunday Afternoon in Chinatown for Solo Flute; Asian Express; Underwater City; The Devil's dance; Nights in Siberia; A Mystery in London, etc.;*
- B. *Distant (creative) associations* titles regarding the content of the myth – *The Secret; A Day in a Village; Awakening; The Brook; Nights in the Desert; Mountain; The Storm; The Turbulent Sea, etc.;*
- C. *Closer (creative) associations* titles regarding the content of the myth – *The Dance of the Forest Fairy for Solo Flute; Meadow in a Spring; Chasing; The Night in the Woods; Nostalgia; Expectation, etc.;*

- D. *Largely corresponding* to the content of the myth titles – *The Nymph; The Sad Song of a Lonely Shepherd for Solo Flute; Pastoral; Love Longing; Loneliness; Awakening of Nature; Daydreaming, etc.*

Regarding the first performance, students proposed titles that can be mostly classified within the *Nature* category (35.5%). In comparison, the titles given during the second (35.1%) and the third (33%) performance can mostly be classified into the category of *Feelings* (Table 3), whereby the titles that were given due to the Pahud's performance *Largely corresponding* to the content of the Pan myth and – therefore – the “program” of Debussy's work (34%), while, in the case of Rampal's interpretation titles mostly fall into the *Not corresponding* to the content of myth category (31.9%), and in the case of Galway's interpretation in the category *Closer associations* (39.8%) (Table 4).

Table 3. Titles description in relation to the content itself.

Categories	The first performance J. Galway	The second performance E. Pahud	The third performance J. P. Rampal
Pastoral	21.5%	16%	4.4%
Nature	35.5%	29.8%	24.2%
Feelings	25.8%	35.1%	33%
Action	5.4%	8.5%	17.6%
Distant associations	11.8%	10.6%	20.9%

There is a noticeable difference between:

1. the first (21.5%) and the third performance (4.4%) concerning the category *Pastoral*;
2. the second (10.6%) and the third (31.9%) interpretation regarding the category *Not corresponding*;
3. the first (28%), the second (34%), and the third (8.8%) interpretation due to the *Largely corresponding* (to the content of the myth category) category (Table 4).

Table 4. Titles description in relation to the content of the myth.

Categories	The first performance J. Galway	The second performance E. Pahud	The third performance J. P. Rampal
Not corresponding	11.8%	10.6%	31.9%
Distant associations	20.4%	29.8%	30.8%
Closer associations	39.8%	25.5%	28.6%
Largely corresponding	28%	34%	8.8%

Conclusion

This research confirms the assumption of the idiosyncrasy of musical interpretation and the vital role of the performer in the triad *composer – performer – listener*. We recognized that all parameters of the interpretation (or “individual expressive acts” [Lehmann, Sloboda, and Woody, 2007: 89]) are related to the listeners’ experience of the work’s character(s). The metaphorical plan of the perception indicates that Galway’s and Pahud’s interpretations were similarly perceived, and in close relationship with the “program” of the piece by Claude Debussy, while, in relation to the Rampal’s interpretation respondents gave the title associations which mostly didn’t correspond to the program of the work and myth, referring to the cities, machines, movement, action, etc., thanks to his treatment of dynamics, articulation, more intense vibrato and the choice of a faster tempo. Since there is no metronomic mark in terms of the speed of the unit at the beginning of the Debussy’s work, nor for the character, but “only” the determinant *Très modéré*, differences between the performances are noticeable in the domain of tempo. Rampal’s performance lasts two minutes (Claude Debussy, *Syrinx*, Jean-Pierre Rampal [YouTube video]), Galway’s about two and a half minutes (*Syrinx*: Claude Debussy. James Gal-

way in Concert with Phillip Moll at Harewood House, 1989. [YouTube video]), while Pahud’s interpretation lasts about three minutes (Debussy: *Syrinx* for solo flute, Emmanuel Pahud [YouTube video]). Gabriellsson and Lindström pointed out that “among factors [which are] affecting emotional expression in music, tempo is usually considered the most important” (Gabriellsson and Lindström, 2010: 383).

We must have in mind that the recording of Rampal’s performance was heard from the record, and we can assume that the “noise” from the record’s sound could associate the respondents to the noise of the city. Juslin states that many factors may influence the music expression, such as the instrument or the performance context (Juslin, 2003: 277).

There are sporadically statistically significant differences between those respondents who already knew the Debussy’s work and those who didn’t – they can be observed through correlation analysis but cannot be theoretically explained.

In the end, we can open a question about whether the results have been different if the order of listening performances were randomized in some groups of participants.

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Principles of Anticipation and Movement Cycles Applied to Piano Gestures in the Brazilian Repertoire for Piano Four Hands

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Abstract

This study deals with a proposal on pianistic technique related to interdisciplinary approaches on planning, direction and simplification of body movements. As a part of this research, we examine and analyze piano gestures and movements used by two pianists during the practice of music excerpts from the Brazilian repertoire for piano four hands. The article's authors are the subjects. The research is based on the principles of anticipation (Póvoas & Barros, 2017; Schmidt & Lee, 2014) and movement cycles (Póvoas, 1999, 2006) in light of the integration of gestures as technical and strategic resources for recognizing and acquiring motion control applied during the construction of a piano performance to enhance the effects of melodic and rhythmic materials and the expressiveness of the pieces (Juslin, 2003; Van Zij & Sloboda, 2011). As a methodology, sound-inducing performance strategies were applied during the practice of one a piano duo and subsequently qualitatively analyzed, taking into account the anticipated trajectory of gestures (hand and arm movements) in excerpts of works for piano four hands by Brazilian composers Osvaldo Lacerda (1927–2011) and Edson Zampronha (1963–).

Introduction

In this work, we discuss organized gestures and movements while playing the piano that were tested during the practice of excerpts from selected pieces of the Brazilian repertoire for piano four hands for the purpose of improving the integration of the performers thereby optimizing the performance. It is about piano playing: anticipation and movement cycles applied to piano gestures in selected repertoire by Lacerda and Zampronha. It is about piano technique related to interdisciplinary approaches to planning, direction and simplification of body movement by applying movement cycles and

anticipation while practicing piano duets. We investigated the piano practice process while preparing the repertoire for a four-hand piano recital in order to analyze piano gestures and movements.

Our intentions were concentrated on the composer's aims for the performance of the pieces. We attempted to investigate compositions that provide practice opportunities for a broad repertoire of four-hand piano, demonstrating different aspects of piano writing and specific rhythmic and melodic characteristics in some of the works accompanied by specific performance options. In this context, for the purpose of optimizing the impact of the performance, we also aimed to implement movement cycles and identify the gesture anticipation of these elements, considering the effects on sound linked to specific musical characteristics.

Context

In practicing four-hand piano repertoire, there are performance situations that require the pianists to explore technically more appropriate movements and gestures. The aim of these movements and gestures should focus on improving sound. Usually, before working together, pianists study their parts (primo or secondo) individually, solving technical and musical issues, often without providing more complex gestures required in duo performance interaction (Williamon & Davidson, 2002). When working together, pianists describe movements that often were not considered in individual practice. In this case, it is necessary to adjust the movements to adapt to pianistic gestures often prolonging the learning process. The schema of this process is shown in Figure 1.

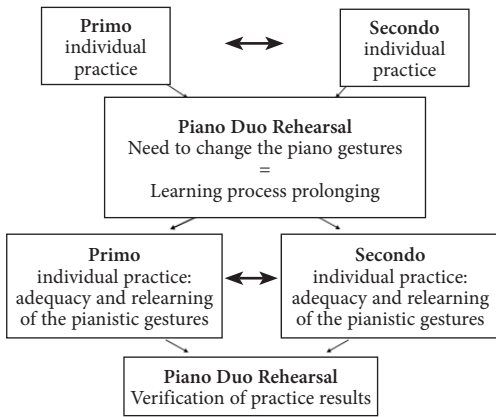


Figure 1. Piano duo individual practice without prior adjustment.

Thus, as a result, the pianists encounter music passages that require them to explore more appropriate gestures in order to improve the performance and synchronization of movements. Movements and gestures accompanied by appropriate technical body strategies to the musical text should aim for improved sound and consequently expressiveness (Juslin, 2003: 277, 278, 287) and communication (Van Zijl & Sloboda, 2011). Our hypothesis is that individual practice with gestures appropriate to the duo situation may increase practice effectiveness, as shown in Figure 2.

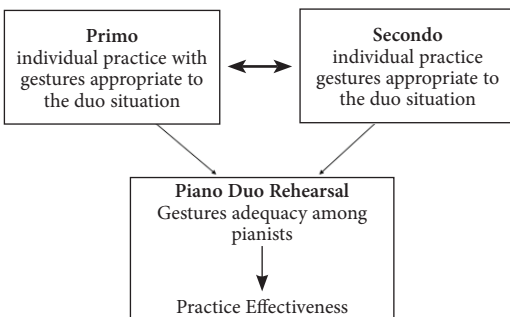


Figure 2. Piano duo practice effectiveness.

In this way, sound synchronization may greatly depend on procedures that could be adopted during individual piano practice and again during duo practice. In this context, the theoretical references of our investigation include concepts from the principles of anticipa-

tion (Magill, 2000: 83–87; Schmidt & Lee, 2014: 32–35) and movement cycles (Póvoas, 1999: 87–110). Both are reviewed and applied from the point of view of gesture integration, understood as the union of two or more movements (Póvoas & Barros, 2017: 3).

Pianistic action is considered an activity of construction, and the element of movement is the path to this action (Póvoas, 1999: 80–86). Anticipation is a phenomenon that occurs before and during movement; it is a characteristic of high-performance motor skills (Schmidt & Lee, 2014: 33). A movement cycle is known as the sequential organization of musical events aggregated in flexible gestures, selected according to music writing. A musical event is one or more notes vertically grouped. A movement cycle is based on the utilization of the initial impulse and the control over the intermediate impulses that constitute the movements (Póvoas, 1999, 2006).

Cycles can be shown by arrows (Figure 3). The extension of each arrow represents the displacement of the X coordinate; the up and down orientation of the arrows indicates the movement in relation to the Y coordinate and the curves for the Z coordinate.

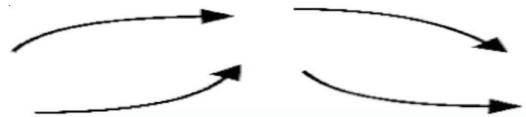


Figure 3. Arrow direction.

The direction of the cycle is defined according to musical and technical efficiency, in order to optimize pianistic actions, as seen in the following score containing arrows (Figure 4).

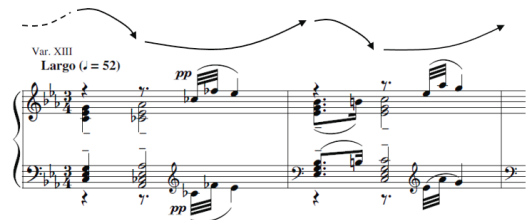


Figure 4. Two Movement Cycles - Trajectory Orientation Line. Variation XIII (mm. 1–2), Rachmaninoff's Variation on a Theme by Chopin, Opus 22 (1903).

In the following figure, we see the lines indicating the direction and extension of the gestures at coordinates X, Y, and Z, where the X coordinate is related to the lateral movement of the hand, wrist, and arm along the extension of the keyboard; the Y coordinate is related to the upward movement of the wrist or arm considering its height in relation to the keyboard; the Z coordinate is related to the in and out the movement of the hand in relation to the keyboard depth (Figure 5).

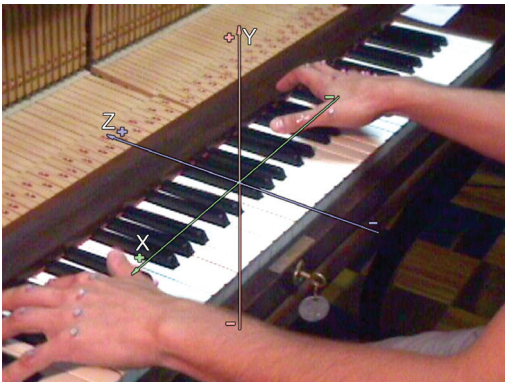


Figure 5: Keyboard correlations - Coordinates X, Y, Z (photo credits Póvoas, 1999: 94).

Method

Our objective was to analyze the technical and interpretive synchronization of two pianists during practice and performance by applying the strategies discussed above in excerpts of *Brasilianas No. 8* (1978) for piano four hands by Osvaldo Lacerda and *Composition for Piano Four Hands and Two Comments* by Edson Zampronha (1985–2005). Sound performance strategies were applied during the practice of a duo and subsequently qualitatively analyzed while considering the anticipated trajectory of gestures (hand and arm movements) in excerpts of the pieces cited.

This exploratory case study was conducted by a professional piano duo that prepared seven pieces for piano four hands by the composers Lacerda and Zampronha. The methodology consisted of four phases as shown in the Figure 6.

The first phase consisted of seven practice sessions lasting up to two hours each; each ses-

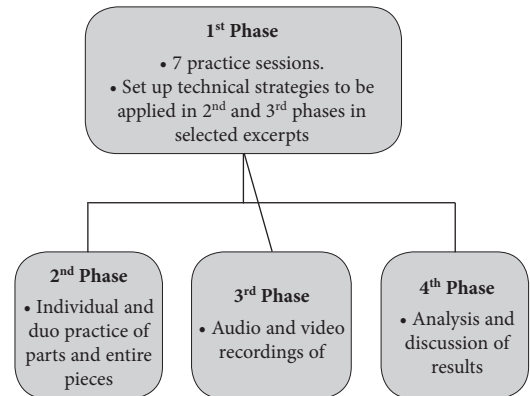


Figure 6. Case study phases.

sion was dedicated to one piece. This phase was the basis for the entire study, as the duo established strategies considering the demand of gestures implied from the score and their relation to the desired sound effects for select excerpts of the pieces. The strategies considered the anticipated trajectory of gestures (hand and arm movements) on the movement cycles.

The second phase lasted one month, in which the duo applied sound-inducing performance strategies during intercalated individual and duo practice sessions. The third phase consisted of video recording of individual and duo practice of selected excerpts and the entire pieces, placing the camera at different angles, laterally and from top to bottom. During the last phase, we plan to focus on data analysis, as well as a description and discussion of further results.

Discussion and Partial Results

We observed that practicing the proposed strategies in certain music excerpts allows for enhanced performance. We understood that even when considering variables, anticipating gestures during individual practice, when appropriate for a duo during a real performance situation, makes it possible to shorten the pianists' adjustment period.

While practicing Lacerda's *Working Song* (1978, mm.104–107), it was necessary to anticipate gestures by applying a movement cycle for the right-hand secondo (Figure 7).

Figure 7. The anticipation of a movement cycle. Working Song (mm. 104–107), Lacerda (1978).

In the next excerpt of the same piece, measures 68–70, there is a situation of limited movement caused by the proximity of the pianists' hands. In this case, both pianists must consider synchronization, expecting anticipating gestures (Figure 8).

Figure 8. Converging Contours between Primo and Secondo. Working Song (mm. 68–70), Lacerda (1978).

Figure 9. Movement Cycle for Primo and Secondo, Four Hand Piano Composition, mm. 7 and 8. Zampronha, 1985/2005.

For the piano performance of the next musical passage, as well as for similar pianistic situations, the choice of technical-instrumental strategy and the anticipation of gestures are indispensable conditions to ensure greater performance efficiency of the pianists and consequently the intended resulting sound. The Figure 9 shows where the motion cycle feature was applied.

Conclusion

Investigating the practice of piano duos is a developing research field and could contribute to optimizing both the musical performance and the expressiveness of this ensemble format. Thus, it helps towards increasing the efficiency of practicing the piano, reflected in the overall optimization of the piano performance.

The practical application of the theoretical principles emphasizes the importance of integrating movements in the cycle considering their initial impulse and its trajectory in the X, Y and Z coordinates, in order to provide sound-performance practice strategies. We raise a hypothesis that the anticipation of pianistic gesture and planning of the movement trajectory should occur mainly in fast-tempo pieces.

Anticipation and movement cycles, if appropriately added to practicing for real situations in duo performances and predicting the indicated speed, can avoid movement constraints or technical blocks between pianists. In this way, they optimize the overall performance with more efficient results.

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Role of the Body and its Movements in Expressive Performances

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Abstract

The theoretical base for this research is the psychology of music performance. Precisely, the relationship between the structures of the musical piece – movements of the body, gestures, mimics – the signified meaning – the expression (Popović Mladenović, Bogunović, & Perković, 2014). Also, the studies that were written by Jane Davidson and Jorge Salgado Correia (2002), and Davidson and Broughton (2016) related to coordination, collaboration and communication through the body movements during music performance, as well as the study by Davidson (2002), related to communicating through body movements in musical performance. The main aim is an extension of empirical researches in the field of psychology of music; accent on the role of the body and body movements during the expressive performance of the musical piece. The comparison of expressible kinesthetic communication was deducted from two performances of Chopin's work *Fantasia-Improptu*, Op. 66, C# minor, through body movements, gestures, mimics and sounds produced during the performance. The two analyzed performances were from Dmitry Shishkin and Anastasia Huppmann. The facial mimics, forward-backward and left-right movements of the torso, the motions of the wrists/elbows, intensity of breathing, as well as the strategic implementation of these movements were analyzed in accordance with the challenges of pianist work in certain parts of the score. The intensity and types of movements between the respondents were compared; the obtained results were justified in the available theoretical background. In the interpretations of Chopin's *Fantasia-Improptu*, the analyzed respondents implied the composer's intentions written in the score (dynamic, agogic) and interconnected the movements of the body with the music sheet. It has also been concluded: body movements are much more expressed by a male performer (even exaggerated), while in a female performer, the (un)conscious torso control occurred. Expression performance indicators (Davidson & Correia, 2002) with Shishkin and Huppmann vary by the intensity, but they are found in both performances. The movements' expressions differ, from time to time, between

the performers due to the individual experience of emotions at a given moment. All movements are unique to the individual performers and their expression represents an adequate response to the produced sound stimulus.

Introduction

Performers have the opportunity to express themselves in many creative ways in each branch of art. Musicians, as highly creative artists, express emotions through music pieces that they perform on their instruments (individually or in a group performance), but also through their voice and body movements. Performers' body movements make the audience aware to which extent the passion in the performer is inflamed while performing a particular piece of music, as each performance must propel the performer, both mentally and physically. At the same time, the analysis of musical performance from the perspective of body movements leaves the possibility for the use of interdisciplinarity as the performers' movements of the musical work can be viewed from the aspects of several other disciplines.

In scientific circles, the connection between body movement and the performance of musical works has been recognized long ago in the history of music (Davidson & Broughton, 2016). In the modern age, at the end of the third decade of the 20th century, various experiments were conducted (and published), aimed to demonstrate to which extent different performances of the same work could be executed if instrumentalists were given different instructions for performing (Clarke, 2002). In other words, from the time of avant-garde changes in music language: "The movement itself is part of performing as an audio-visual event and is the subject of investigation and debate" (Clarke, 2002: 67). However, some composers in the 20th

century strived to completely remove musicians from the live stage because "... in addition to their unbearable arrogance, they are completely unnecessary, except that their interpretations make the music intelligible to an audience not fortunate enough to be able to read the music in writing" (Doğantan-Duck, 2011: 245). Nevertheless, the performer is still a valid part of the musical process, from the composers' idea to the actual performance. Just before the end of the 20th century, musicology began to accept the movements of the musicians' body during a performance as a separate part in the history of music which could be explored.

In the 21st century, there have been studies that have dealt with the phenomenon of body movements during musical performances. One of the extensive studies – *Interdisciplinary Approach to Music: Listening, performing, composing* (Popović Mladenović, Bogunović, & Perković, 2014) – dealing with mostly contemporary music artists and pieces. Interdisciplinarity was viewed from the perspective of the psychology of music, that is, "expressive kinesthetic communication" in conjunction with (musical) analysis and non-verbal communication that is expressed with help of the body of the performer. Unfortunately, there are only a few research experiments regarding the role of performers' body movements from the perspective of music psychology in the Serbian musicology/psychology. The impetus for young scholars might be precisely the study of Serbian authors, given the clarity of presentation, thorough research and the significance of the achieved results.

Frederic Chopin's *Fantasia-Improptu*

The focus of the musical research does not have to be only about the work of contemporary authors, because the startup of musical performers on both mental and physical level can also be seen through the analysis of compositions from earlier music history. Therefore, the example for analysis in this paper will not be a modern work, but the basic setting from the perspective of the psychology of music is essentially the same. Compositions from the Roman-

tic period have always intrigued both performers and musicologists. Moreover, pieces from Slovenian authors (Davidson & Correia, 2002), including the work of Polish composer Frederic Chopin, are rightly declared as the most beautiful pieces from the past musical heritage.

Before the analysis itself, a distinction should be made in defining body movements in musical performers: the body movements required to play the instrument are not of the same importance as the uncontrolled body movements that each musician expresses while playing a particular piece (Davidson & Correia, 2002). Also, in the psychology of music, the danger that researchers can encounter is reflected in the fact that the movements of the performers' body should not have the highest priority if all other aspects of music and psychology have not been researched.

The particular piece for analysis is *Fantasia-Improptu*, opus 66, in C# minor. This Chopin's piece was written for piano, in 1834, but it was published in 1855, after the composer's death (Hadden, 1903: 160). *Fantasia-Improptu* is one of Chopin's most famous and well-performed works, and it has a very wide space for analysis of body movements. The piece can be divided into sections according to the composer's tempo marks: Allegro agitato – Largo /Moderato cantabile/ – Presto. Although the precise instructions on which agogic elements and tempo marks (dynamic shadings, *sotto voce*, *pesante*, *sf*, *rfz*), a pianist should pay attention to, are given by the composer, each performer has its own interpretation, because it should also be taken into consideration that "... they [performers] don't like learned people telling them what to do in a dictatorial language that threatens the artist's artistic freedom" (Rink, 2002: 41).

The analysis of the composition was directed from multiple angles of the psychology of musical performance. One angle of the body movements was described by Jane Davidson and Marie Broughton (2016). Namely, they came to the conclusion that, in the processes of music interpretation, the human body is crucial for communication and understanding. Davidson (2002) then interpreted different types of musical performances (vocal, pianist performances)

and presented the results that could be compared with interpretations of Chopin's piece. Also, the observation and analysis of the movements of the face and body by the performers of *Fantasia-Improptu* rely heavily on the aforementioned study of the embodied meaning of Serbian musicological and psychological experts.

Aims

The best way to start is with the question: how can a bodily interpretation of the score contribute to a communication process involving the body as a certain "screen" of the performer's emotions and psycho-physical state? (Popović Mladenović et al., 2016). If it is known that there is a difference between the body movements required to play the instrument and the uncontrolled body and facial movements, some similarities, as well as some differences, can be observed in the contemporary performances of Chopin's romantic fantasy.

The physical moment of performing this work requires a large dose of pianist concentration since the left and right hand play different rhythmic patterns (the left-hand plays sextuplets and the right-hand semiquavers) in a fast tempo. Then, frequent changes of pace (if the first part is not repeated – as it is indicated before – there are four major tempo marks, from very slow to very fast tempo) require from the performer some physical and mental readiness to play the fantasy parts at an adequate speed, which was determined by the composer. Due to the melodies played in both right and left hand, the instrumentalist must count on subtle oscillations of the tempo during the performance of the piece (*rubato* playing), as well as on the great technical sophistication due to the complexity of the musical material. All of the above elements can put the performers in a position to conduct the work expressively, in their own way.

One should not forget the fact that *Fantasia-Improptu* has been analyzed in this text through the interpretation of live performances. Both performances were staged in front of an audience, which undoubtedly leaves a different impression than the atmosphere of recording in a studio. The tension is greater, and the forms of

stage fright that accompany public performance could be accounted for. There is also a greater need for theatricals in both performers. To answer the question stated above – the bodily interpretation of the score can greatly enhance the impression of the piece, largely through social interaction with the audience. Listening alone (or studio recording) of *Fantasia-Improptu* cannot evoke the exact same amount of body/face movements.

Method

Two performances of Chopin's fantasy will be compared, whose recordings can be found on YouTube (and their links in the list of references at the end of this paper). Female player is Anastasia Huppmann (today she is 31 years old, recording was published on April 9, 2016, duration of the piece itself is 5'26") and the male performer is Dmitri Shishkin (today he is 28 years old, recording was published on October 16, 2015, duration of the piece itself is 5'16"). The choice of these two pianists was made due to the temporal closeness of their performances, the similar geographical origin of the performers (Russian) and the fact that gender differences can intriguingly contribute to the research. The facial mimics, forward-backward and left-right movements of the torso, the motions of the wrists/elbows, intensity of breathing, as well as the strategic implementation of these movements were analyzed in accordance with the challenges of pianist work in certain parts of the score. The intensity and types of movements between the respondents were compared; the obtained results were justified in the available theoretical background. In the interpretations of Chopin's *Fantasia-Improptu*, the analyzed respondents implied the composer's intentions written in the score (dynamic, agogic) and interconnected the movements of the body with the music sheet.

Results of the Analyses

Facial mimicry following the most technically demanding parts of the fantasy (from bar 5, when the playing process begins with both hands of the player and each hand has a differ-

ent rhythmic pattern, as well as part of the score entitled Presto, from bar 83) can adequately evoke the technical complexity of the performance. The forms of expression on the faces of the two performers are: raising and lowering eyebrows, making astonished facial expressions by raising eyebrows, (slight) mouth opening, but also slightly pressed lips to express concentration when playing technically demanding parts of the composition, semi-opened eyes.

Torso, swinging back and forth and left to right, is a body movement that is, in most cases, related to the musical pieces of the romantic era (due to the emotional reaction to the ‘infatuation’ of the romantic melodies). However, the sudden and abrupt movement of getting up and re-sitting on the piano chair may be uncontrolled by the performer (Dmitry Shishkin’s case), due to the overstatement of the forte dynamic of certain chords in his left hand. However, this movement brings too much focus to the performance itself (when it comes to performing works from the early Romantic period), making it overemphasized movement for expressing the loud dynamics. It is the same case with the closeness of the male performers’ head and keyboard. This way of performing gives the impression that Dmitri is very aware of the environment and playing in public, and that with his performance he wants to give the audience his own impression of Chopin’s work.

Theatricality in **wrist movements** (Davidson, 2002) is more pronounced in the male performer, while the female performer, Anastasia Huppmann, expresses more **elbow** movements. Moreover, Anastasia minimizes the upper body moves and favors movements of the arms. In other words, she favors motions that are most common for pianists and for which she may have a bigger control regarding the exaggeration of emotionality, due to her concentration on performing itself.

Although the dynamic range in fantasy is quite wide (from *ppp* to *ff*), neither of the performers had the need to emphasize dynamics with the intensity of their **breathing**. Namely, the breathing of both performers is not completely even, but it is not accentuated by each audible sound of inhalation or exhalation.

Free (or uncontrolled) pianist **leg movements** are largely prevented, especially when we consider the fact that pianists use their legs to play (left and/or right) pedals on the piano. Consequently, the (involuntary) twitching of the leg muscles in the performance of Chopin’s work should not be regarded as a fully relevant movement of the performer’s body. Jane Davidson (2002: 147) agrees with this opinion, referring to the ‘center of gravity’ of pianists’ movement, considering the fact that the performer’s hips are the most important part of the body from which the movements’ production begins. The upper body moves from the hips, and the distribution of body movements is closely linked to the back, head and arms, while the performers’ legs are somewhat static, and they are not the primary source of body movements that significantly contributes to the analysis.

In the processes of creating, communicating, and understanding musical performance, Davidson (2002: 146–147) has, in the course of performing, come to the conclusion, based on the observation of several pianists: circular and body-swinging movements are indicators of expressive performance. Also, fluctuations in expressiveness indicators benefit the movements that can be seen when performing *Fantasia-Impromptu*: the specific lifting and lowering of hands and arms whose character varies from lavish circular motions to small joint rotations; movements of the shoulders and moving the head back and forth. Both Dmitri and Anastasia use these movements as eclectic examples of expressive rendition of a composition.

It is important to emphasize that certain gestures occur to all performers strategically, always in the same places in the score, and act as a strong link between the physical production of expression and their analogous sound effects. However, with certain performers, there are variations in the expression of the type of gestures in the same places in the score. For example, in the part of *poco a poco più tranquillo* (b. 129 in *Fantasia-Impromptu* score), although it is known that a valid tempo mark in the mentioned bars is the fastest possible (Presto) and the performer is asked to gradually calm down the speed and intensity of playing, the way of

interpreting the body movements when pianist is calming down can be expressed in numerous ways. It is interesting to note that the two performers completely differently perceive and reflect the leading melody in the left-hand section, as a moment of tension in the piece. Specifically, Anastasia plays with her eyes closed and acts as if she is listening with infatuation to what she is performing (bringing the head down, letting her hair fall over her face while raising her eyebrows). Dmitri also (most of the time) does not look at the keyboard to what he is playing, but he does not close his eyes. He directs his gaze upwards, towards the ceiling, only occasionally casting his eyes on his left hand.

Conclusion

Through expressive body movements, the performers of the analyzed Chopin work had the opportunity to connect (or communicate) with the audience that listened to their performance. In other words: “The musician’s body is not just the tool for producing exquisite musical sound. The performer’s musical thoughts and feelings are embodied in the holistic sense; transformed into a multimodal display in order to express and communicate with others” (Davidson & Broughton, 2016: 575). By playing *Fantasia-Improptu*, the performers re-created the work in a certain way, embodying it through communication with the environment throughout visual (face and body movements) and auditory (listening) level. It is the audience who understands the work by watching and listening to public performance. Also, the appearance of the performers (clothing suitable for public performance), the ways of coordinating the body of Shishkin and Huppmann during their playing in their own way, and adequate treatment of the audience by bowing after the performance, all led to communication with the audience and provided a valid response to the composer’s idea how to treat the music material.

Relying on the relations of the structures of the musical work – body movements, gestures, mimics – embodied meaning – expression, the following conclusions can be made: Chopin’s work *Fantasia-Improptu* would not be com-

plete if one ignored live performance and body movements/gestures/mimics because the body is not just a “mechanical source of input and output” (Davidson & Correia, 2002: 575). In Davidson’s (2002) words, “. . . musical performance is a highly expressive and abstracted activity which emanates from a grounded bodily origin” (p. 150). The meaning of movements that performers produce is inseparable from the score, although interpretations of movements at times differ among performers due to the individual experience of emotions at a given moment. The embodied meaning in Chopin’s fantasy is inextricably linked to the interpretation of the score and there is no ‘right’ or ‘wrong’ explication. All made movements are specific to individual performers and, in certain situations, their expression represents an adequate response to the auditory stimulus performed by the pianists.

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Psychology and Music Education

Learning Preferences of the Musically Gifted

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Abstract

Around one-quarter of musically gifted students in Serbia perceive their talent as fully or largely realized, which can imply that the educational needs of the majority of musically gifted students in Serbia are not satisfied, as previously shown, but also that they see significant space for further progress. Deeming that the gifted themselves can provide a significant contribution to the process of finding possible ways to meet their educational needs, a convenience sample of 136 respondents (55 students of secondary music schools in Belgrade and 81 students of the Faculty of Music in Belgrade) was given an adapted version of the Possibilities for Learning questionnaire. The main methods of analyzing the collected data are independent *t*-test and principal component analysis (PCA). Findings indicated that younger respondents are more teacher-oriented and that the older respondents tend to take initiative and to have a deeper understanding of the content. The principal component analysis conducted on 64 items with orthogonal rotation (Varimax) showed a possible solution of five components that together explain around 43% of the variance. This solution was obtained by adding a subsample of 39 respondents gifted in the domain of visual arts. The values of the Kaiser-Meyer-Olkin measure of sample adequacy, $KMO = .808$, and Bartlett's test of sphericity, $\chi^2(2016) = 6039.663$, $p < .001$, confirmed that it was suitable to conduct this analysis. Due to the potential pedagogical value of this solution and the possibility of applying the inventory in the process of differentiating and individualizing teaching, it is necessary to continue adapting the inventory and carrying out further research on a larger sample.

Introduction

Research findings indicate that in young musicians in Serbia (aged 6 to 22) the expectations regarding their musical education grow and become more differentiated as the students

become older, while at the same time decreases the percentage of those who consider that their expectations are met, and the percentage of those who consider that their talent is largely or fully realized (Bogunović, Dubljević, & Buden, 2012). Additionally, a significant discrepancy between the competencies that music students expect in their teachers and the competencies that they perceive in them has been established (Bogunović & Mirović, 2014: 484). The observation that young musicians perceive the education system as traditional and not too flexible and innovative is also noteworthy (Bogunović et al., 2012). Altogether, the given findings can indicate a gap between the educational needs of young musicians and what our education system is offering them (according to Altaras Dimitrijević & Tatić Janevski, 2016; Bogunović et al., 2012; Bogunović & Mirović, 2014).

Considering that we view underachievement as a “consequence of incoherent or conflicting interaction between the needs/characteristics of the gifted student and the characteristics of . . . the school” (Altaras Dimitrijević & Tatić Janevski, 2016: 48), in order to prevent it from occurring we need to answer the question of how we can support the musically gifted on their path towards gaining expertise. Lannie Kanevsky's (2011a) research on the learning preferences of gifted students was a reminder that part of the answer to the above question can be given by the students themselves. Thus, we tried to adapt the said author's instrument (Kanevsky, 2011b), intended for testing the learning preferences of the academically gifted so that it can be applied in the domain of musical giftedness. We believed that this kind of instrument, available to teachers, school associates and researchers, could present a significant source of data for

planning the type of teaching that would meet the educational needs of the musically gifted (according to Kanevsky, 2011a).

Method

In exploratory, nonexperimental field research, we asked the musically gifted what they like to learn about, in what way and under what kind of conditions they like to acquire knowledge, as well as in what way they would like to demonstrate what they learn (according to Kanevsky, 2011b).

Research Aims

1. Determine whether there are differences between the learning preferences of secondary music school students and the Faculty of Music students.
2. Test the latent structure of the instrument used to collect data on learning preferences.

Research Tasks

RT 1: Examine whether there are differences in learning preferences among respondents of different ages.

RT 2: Examine whether there are differences in learning preferences between respondents studying at performing and those at theoretical departments.

RT 3: Examine whether there are differences in learning preferences among respondents of different genders.

RT 4: Examine in what way the items of the adapted Possibilities for Learning questionnaire are grouped.

RT 5: Test the metric characteristics of the adapted Possibilities for Learning questionnaire and individual items.

Variables

The only continuous variable in this research is the learning preferences of the respondents operationalized by the respondents' answers to each of the items of the adapted Possibilities for Learning questionnaire (Version 3b; Kanevsky, 2011b).

The respondents' age, the study program they attend and their gender are categorical variables by type. Attending secondary school or the faculty represent levels of the age variable. Based on the division into two basic study programs (Bogunović & Mirović, 2014), the respondents were grouped into those who attend vocal-instrumental/performing study programs and those who attend theoretical programs.

The students' gender was included in the research as a control variable, with the levels: male, female and other.

Participants' age and gender are included because they are among those learners' characteristics that have been, although inconsistently, associated with the instructional preferences of gifted students (Kanevsky, 2011a: 281).

Sample

The convenience sample in this research comprises a total of 136 respondents. The subsample of secondary school students comprises 55 third and fourth-grade students from three secondary music schools in the city of Belgrade. The university student subsample comprises 81 undergraduate and master level students of the Faculty of Music, University of Arts in Belgrade. Treating these groups as two subsamples is justified by the determined statistically significant difference in the average year of birth of the secondary school ($M = 2000.962$, $SD = 0.656$) and university students ($M = 1995.356$, $SD = 3.057$), $t(123) = 12.998$, $p < .001$. Our assumption is that the total sample is part of the musically gifted population since, in Serbia, attending a secondary music school or the faculty of music presents both a professional orientation and a sign of stricter selection than that carried out at lower educational levels (Bogunović, 2010; Bogunović et al., 2012).

We do not have data on the department and gender for every respondent. According to the data provided by the respondents, 89 of them are enrolled in performing, and 44 in theoretical departments. In terms of gender distribution, 37 respondents indicated they are male, and 93 female; one respondent marked the category "other".

Data Collection Techniques

To test the learning preferences of the musically gifted, the adapted version of the Possibilities for Learning – Version 3b questionnaire (Kanevsky, 2011b) was used. The original inventory, comprising 101 items organized into four subscales, was reduced to 67 items by excluding those items that could not be applied to the general context of education and the education of musicians in Serbia, and by excluding the items that related to the family of musicians. Subsequently, the content of most of the remaining items was modified in order to reflect the specificities of formal and informal knowledge and skill acquisition in the field of music in our country. As there were some similarities in the content of some of the items, those items were summarized into one. Having in mind the respondents' age, and given the desire to obtain more differentiated responses, a seven-point Likert scale was applied in place of the original five-point scale. Finally, slight changes were made in the content of certain items in order to make them more easily relatable for respondents in the two age groups, which gave us parallel versions of the inventory for secondary school and university students. Unlike with the original inventory, where respondents were told to fill it in thinking about their favorite subject (Kanevsky, 2011b), our respondents were instructed to fill in the questionnaire only having in mind their music-related subjects.

Due to the vast modifications made to the structure of the original inventory and the content of individual items, the adapted instrument is treated like a check-list.

The introductory part of the material given to the respondents also comprises questions about their year of birth (an integral part of each respondent's code), department and gender. Since the inventories were administrated on the premises of the institutions attended by the respondents, there was no need for them to note whether they are secondary school or university students.

Conducting the Research

Data collection was conducted in December 2018, it lasted around 15 minutes and it was

anonymous. Considering the conditions under which data were collected and the respondents' willingness to cooperate, the collected data are considered valid.

Presentation of Findings

All data were processed quantitatively, using the IBM SPSS Statistics 21.0 software. The main methods of data processing were independent *t*-test and principal component analysis (PCA).

Before presenting the findings in detail, we note the fact that our respondents' answers indicate a high degree of agreement with most of the claims in the given adapted Possibilities for Learning questionnaire. On the seven-point scale, an average score lower than 4 was registered only in three items for the secondary school students subsample, and only in four items in the university students subsample. Both secondary school ($M = 2.854$, $SD = 2.138$) and university students ($M = 3.237$, $SD = 1.931$) least prefer to learn/practice under pressure.

Examining Intergroup Differences in Learning Preferences

By using the independent *t*-test, the following differences in learning preferences were found.

Compared to university students ($M = 5.238$, $SD = 1.407$), secondary school students, on average, prefer to a greater degree to have the teacher decide how they should demonstrate what they learned ($M = 5.800$, $SD = 1.471$). The established difference is statistically significant, $t(133) = 2.240$, $p = .027$. The other statistically significant differences are in favor of the Faculty of Music students.

When comparing the arithmetic means of the secondary school and university students' responses, it was found that university students, on average, prefer to choose their work partner themselves ($M = 6.475$, $SD = 0.779$) to a greater degree than secondary school students ($M = 6.018$, $SD = 1.408$), $t(133) = -2.416$, $p = .017$. University students on average like to gain experience outside faculty ($M = 6.512$, $SD = 0.914$) to a greater degree than secondary school students ($M = 5.854$, $SD = 1.715$), $t(133) = -2.889$,

$p = .005$. On average, university students like to explore music-related topics on the internet too ($M = 6.375$, $SD = 1.048$), to a greater degree than secondary school students ($M = 5.854$, $SD = 1.638$), $t(133) = -2.252$, $p = .026$; and also to recognize the connections between topics/ideas ($M = 6.338$, $SD = 0.841$), more than their younger colleagues ($M = 5.764$, $SD = 1.598$), $t(133) = -2.714$, $p = .008$. Finally, on average, university students like to know about the feelings of others ($M = 5.848$, $SD = 1.252$) to a greater degree than secondary school students ($M = 5.236$, $SD = 1.742$), $t(132) = -2.366$, $p = .019$.

When observing the average answers of respondents attending different departments, only two statistically significant differences were determined. On average, the respondents who chose to study theory like to have the teacher who encourages them to test out a new way of work that they devised themselves ($M = 6.182$, $SD = 0.896$) to a greater degree than the respondents from performing departments ($M = 5.786$, $SD = 1.143$), $t(131) = -2.008$, $p = .047$. Furthermore, respondents from theoretical departments, on average, like to be familiar with the grading method before they start working ($M = 5.773$, $SD = 1.710$) to a greater degree than the respondents enrolled in performing departments ($M = 5.022$, $SD = 2.000$), $t(131) = -2.132$, $p = .035$.

When it comes to the question on the respondents' gender, out of 136 respondents only one selected the option "other". As it would not be justified to treat this respondent as a separate group, the answers provided by this respondent were excluded from the analysis of data based on the respondents' gender. On 25 items of the adapted Possibilities for Learning questionnaire, we have determined statistically significant differences between the average answers of male and female respondents. All the determined differences are in favor of the female respondents. Due to space limitations, we will not present these findings in detail. On average, the female students reported to a greater degree than their male counterparts that they like to know about the feelings of others, to get support and guidance from a teacher or expert, to gain knowledge from and about famous people in their

field, but also to have the opportunity to gain knowledge in different ways, through projects, in extracurricular contexts, by dealing with complex, unusual topics that do not have to be part of the study program, and by considering familiar contents from a new angle. They also, to a greater degree, like to figure out how or why something happens, to change ideas/themes from one form to another, to choose how they will demonstrate what they learned, and to participate in group discussion. On average, more so than their male counterparts, the female students like to get feedback on how they can improve their work/performance even when they get a good grade, and after a competition, they like to know their relative standing in comparison with other colleagues. Additionally, on average, the females in the sample like to learn a lot of new content quickly, to remember facts and definitions, to a greater degree than the males. On these 25 items, differences between the arithmetic means of females' and males' responses range from 1.035 to 0.535 points of Likert scale, and the significance levels range from .049 to .001. Considering inconsistent findings about the relations of learner's gender and instructional preferences (according to Kanevsky, 2011a), researches on larger samples are needed.

Latent Structure of the Adapted Possibilities for Learning Questionnaire

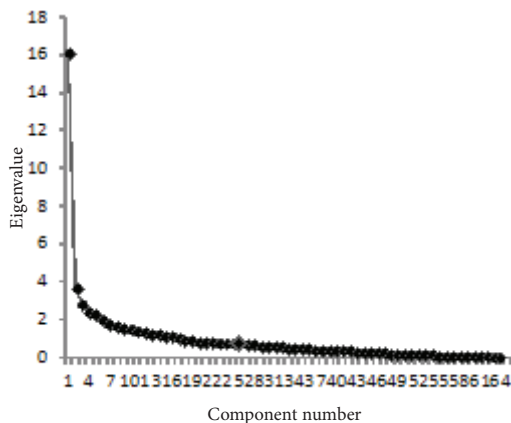
Due to the size of the sample of musically gifted respondents, a more stable factor solution was obtained when a group of 31 students from the Faculty of Fine Arts in Belgrade and 8 students from the Art History Department of the Faculty of Philosophy in Belgrade were included in the sample. Because of the low anti-image correlations, three items were excluded from the analysis. The principal component analysis with orthogonal rotation (Varimax) was conducted on 64 items of the adapted Possibilities for Learning questionnaire. The Kaiser-Meyer-Olkin measure confirmed that the sample is adequate for conducting the analysis, $KMO = .808$ (according to Field, 2009), while Bartlett's test of sphericity $\chi^2(2016) = 6039.663$, $p < .001$, indicated that the correlations between the items

are large enough for principal component analysis. The initial analysis was conducted in order to obtain eigenvalues for each of the components. As many as 17 components had eigenvalues above 1 (Kaiser’s criterion; according to Field, 2009), and together explained 69.589% of the variance. Graph 1 shows a curve that can justify retaining five components. As the respondent sample is small, and the number of components according to Kaiser’s criterion is extremely large, in the final analysis, we retained the five components observed in the graph. These five components together explain 42.892% of the variance. Due to space limitations, it is not possible to present the rotated structure matrix; thus, data from the matrix is presented in Table 1, including the highest and lowest factor loadings for each of the components, after rotation.¹

The items grouped at component 1 indicate that it represents a focus on the process of knowledge acquisition. The content of the 23 items grouped at this component, e.g., “I like to understand how ideas/topics are mutually connected” and “Even when I get a

Table 1. Summary of principal component analysis results for the adapted Possibilities for Learning questionnaire (N = 174).

Component	Eigenvalue	% of variance	α	Highest and lowest rotated factor loadings
Focus on the process of knowledge acquisition	16.104	25.163	.908	.720 – .404
Mentorship	3.691	5.767	.876	.625 – .422
Independence	2.866	4.479	.721	.584 – .410
Cooperativeness	2.438	3.809	.745	.702 – .418
Focus on the outcome	2.351	3.673	.610	.636 – .433



Graph 1. Presentation of eigenvalues for each of the components.

¹ Table of the rotated factor loadings of all items from the adapted Possibilities for Learning questionnaire is available at the following link: https://docs.google.com/document/d/1QXmTEA_hDnToFxdgc-sUjME9irp7ET8kSaYAdl-Ecya0/edit

good grade, I like to get feedback on how to improve my work/performance”, indicate a need to master the content, to consider and understand certain topics on a deeper level, with the focus being on the search for a solution, and not the solution itself. The 15 items grouped on component 2 (two items also have loadings on component 1) indicate that it represents mentorship, and these include items such as: “I like to gain knowledge by listening to experts” and “When I am working on a larger learning project, I like to be directed by the teacher”. On component 3, 12 items are grouped (two of which also have loadings on component 1), and they indicate independence. Among these items are: “I like it when the teacher allows me to continue working on a topic that I find interesting/to choose the compositions that I find interesting” and “I like to assess my work/performance myself”. Only six items are grouped on component 4 and they indicate that it represents cooperativeness. Among these six items are: “I don’t mind asking for additional help” and “I am happy to hear the opinion of other students about something

that is causing me difficulty”. Six items are also grouped on component 5 and they indicate that it represents a focus on the outcome. The following two items are among those grouped on component 5: “I like to discuss the grade I got with the teacher” and “I like to decide how my work/performance will be assessed”.

Discussion of the Findings

Intergroup differences in learning preferences. Examining the learning preferences of musically gifted students, we found that secondary school students, on average, to a greater degree like to have the teacher decide how they will demonstrate what they learned, while university students are more inclined to express initiative, both when it comes to choosing the conditions of work/knowledge acquisition, and when obtaining information. Additionally, the university students report that they strive for a deeper understanding of the content at hand, to a greater degree than secondary school students. Although the observed differences are small in number, it seems that they resonate with claims of a greater focus on the teacher among the musically gifted at younger ages, and greater independence as they progress on the path towards gaining expertise (Subotnik & Jarvin, 2005).

Finding idiosyncratic ways to solve problems in the domain of one’s gift is one of the inherent characteristics of giftedness, according to Winner (1996/2005). Still, it seems that respondents from theoretical departments like to have the teacher support them in order to apply what they discovered to a greater extent than their colleagues from performing departments. Considering the difference in the dominant way learning is organized in these departments (group versus individual; Bogunović & Mirović, 2014), it is possible that the respondents from performing departments already have that kind of support and thus they do not perceive it as especially important. The fact that we found statistically significant differences in only two items when observing the average answers of respondents from different departments implies that there are no big differences in the learning preferences of respondents from performing and those from theoretical departments.

On the other hand, when we examined the answers of males and females, differences were observed in as many as twenty-five items. In females, the affinity towards acquiring knowledge and skills through guided experiences, towards dealing with the emotions of others, as well as towards participating in discussions, was observed to a higher degree. Although this seems like an expression of the characteristics of a dominant socio-cultural model of gender identity where traits such as submissiveness, sensitivity, and tenderness are more desirable in women (Bogunović, 2017), there were also groups of items that indicate that the female more so than the male respondents prefer to master knowledge at an expert level in the domain of their gift, to deal with complex topics, and to go deeper into the essence of the material at hand. As there is no empirical basis to assume that there are systemic differences in the abilities or intrinsic motivation among our respondents of different genders (Bogunović, 2010; Kemp, 1996, Radoš, 2010, all according to Bogunović, 2017), a potential explanation relies on the findings related to the personality of female musicians, which affirm the existence of more pronounced traits of openness for experiences and agreeableness (Bogunović, 2012, according to Bogunović & Bodroža, 2015).

Latent structure of the adapted Possibilities for Learning questionnaire. Firstly, we must emphasize that considering the number of items in the adapted inventory and the sample size, the adopted solution is treated only as guidance for further research. In addition, we note that the value of the component reliability coefficient is influenced by the number of items (Cortina, 1993, according to Field, 2009) and that, since this is exploratory research, reliability coefficient values of 0.7 are acceptable (according to Field, 2009). The content of the items with high loadings on the first component is related to a focus on the process of acquiring knowledge, and as a contrast to that, we see the content of the items with high loadings on the fifth component, which is related to a focus on the learning outcome. The stated orientations also provide a pedagogical justification for retaining this solution, because these pupils’ orientations

and guidelines for teaching practice are well described in pedagogical literature (e.g., Brofi, 2010/2015). Also, open-ended activities were one of nine thematic categories developed by Lannie Kanevsky (2011a) in order to present her results.

On the other hand, the items with high loadings on the third component indicate independence in the process of acquiring knowledge in the domain of one's gift, which is, according to some authors, an inherent trait of giftedness (Altaras Dimitrijević & Tatić Janevski, 2016; Winner, 1996/2005), while the items with high loadings on the fourth component indicate gaining and deepening knowledge through cooperation with others, regardless of whether they are colleagues or teachers.

Finally, the content of the items with high loadings on the second component is related to a need for guidance by a mentor, who can be a teacher or an expert in the field. The oblique rotation (Oblimin) showed correlations of this component with all other components, implying that it is not an independent component. In other words, it is possible that both the students focused on the process and those focused on the outcome have a need to be guided by a mentor in the process of acquiring knowledge. This brings to mind the importance of the mentor on one's path towards expertise (Ericsson, Krampe, & Tech-Römer, 1993, according to Hambrick et al., 2013) and it is in accordance with the finding that the musically gifted rely on the help of competent and engaged teachers (Bogunović et al., 2012) and that they assign to them a great deal of importance and responsibility for their own progress (Bogunović & Mirović, 2014: 469).

Limitations of the findings and recommendations for further research. Considering the convenience sample, the presented findings relate only to this sample of respondents and it is not justifiable to generalize them. Due to the sample size, the findings obtained through principal component analysis indicate a possible latent structure of the questionnaire, which needs to be empirically verified on a much larger sample, taking into consideration the number of items. Further steps in adapting the inventory

would include excluding items with low loadings and creating subscales with an even number of items.

Conclusion

The finding that only 28% of musically gifted students perceive their talent as fully or largely realized can imply that the educational needs of the majority of musically gifted students are not satisfied, but also that the students themselves see significant space for further progress (Bogunović et al., 2012). Both assumptions provide cause for examining the ways in which the educational needs of the musically gifted can be met. This research is an effort to give the musically gifted an opportunity to say what they like to learn about, in what way and under what conditions they like to acquire knowledge and skills, and in what way they like to demonstrate the acquired knowledge and skills (according to Kanevsky, 2011b).

By examining learning preferences on a convenience sample of musically gifted respondents, we obtained results that indicate that, on their path towards excellence and the highest achievements, university students tend to take initiative and gain a deeper understanding of the content to a greater degree than secondary school students. The observed differences in the educational preferences of male and female respondents were interpreted as a potential consequence of the empirically confirmed greater openness for experiences and cooperativeness' of female musicians (Bogunović, 2012, according to Bogunović & Bodroža, 2015).

When considering the structure of the adapted Possibilities for Learning questionnaire, five components were observed. Aware of the limitations of findings stemming primarily from the characteristics of the sample, we see the obtained solution as a first step in the further adaptation of the used inventory, which is currently being treated as a check-list. The strongest argument for continuing work on this questionnaire is the potential pedagogical value of the obtained factor solution and we believe that with further perfecting this instrument could be applied in the process of differentiating

and individualizing the learning process. Therefore, the next steps involve testing the obtained solutions on a larger sample of the musically gifted.

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Children with Additional Support Needs in Music Education

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Abstract

Inclusive education requires an individualized approach to developing a stimulative and friendly school environment for each student. The findings suggest that individualized educational support contributes to progress, especially integration in a peer group, self-confidence and more regular attendance of students with additional support needs (ASN). Moreover, the development and provision of individual educational support seem to nurture a partnership between parents and school. Research exploring the quality of individualized support in Serbia was focused on primary education, while the quality and effects of individualized support to ASN students in specialist education, such as music education, remain under-researched. The study aims at exploring the process and outcomes of addressing ASN students within specialist music education in Serbia. The research is focused on perceptions of ASN students, their parents, teachers and school psychologists related to (a) additional support; (b) parental involvement; (c) outcomes on ASN students. Questionnaires on outcomes of ASN students were adapted from the previous studies on inclusive education in Serbia, while questionnaires related to the provision of additional support and parental involvement were developed for the purpose of the research. The purposeful sample comprises data on 19 ASN students, 8 to 18 years old, attending music education. The analysis included descriptive statistics for quantitative data and content analysis of open-ended questions. The findings portray music schools as an environment which nurtures partnership with parents and provides quality pedagogical support for the majority of ASN students. At the same time, support for social interaction of ASN students with their peers seems to be an area in which music education is lagging behind.

Introduction

In 2009, the Law on Foundations of Educational System advocating the idea of inclusive education was introduced in Serbia. The Law mandated that mainstream schools have to enroll every child, regardless of the type and level of support needed. Moreover, the individual education plan (IEP) was recognized as a useful tool in the administration and implementation of inclusive policy. The current regulatory language defines IEP as a written document tailor-made for a particular student, which includes information on the student's current level of performance, long and short-term goals that serve to focus education interventions, information on support provided to the student, division of responsibilities regarding support provision, and a plan for monitoring progress. The IEP should be developed and periodically reviewed by a team established for each child needing additional support. The team must include the parent(s) of the student, class teacher and school associate, and can include other persons who have special expertise regarding the child (e.g., child pediatrician, personal assistant). The Serbian legislation recognizes three types of IEPs: IEP 1 that adapts content and approach but does not change expected achievement standards; IEP 2 where curriculum and standards of achievement are modified and IEP3 that provide opportunity for gifted and talented students to master more rigorous and enriched content (Rulebook on detailed guidelines for determining the right to the individual education plan (IEP), and its implementation and evaluation, 2018).

Research on quality of inclusive education in Serbia almost 10 years after its introduction

show that IEP still generates different views on its use, function, and even legitimacy (Kovač-Cerović, Jovanović, & Pavlović Babić, 2016a). Teachers and schools are struggling to develop compliant and meaningful IEPs, ensure parents' participation, and meet workload and paperwork requirements (Kovač-Cerović et al., 2016a). On the other hand, data suggest that individualized educational support contributes to ASN students' progress, especially integration in a peer group, self-confidence and more regular attendance of classes. Moreover, the development and provision of individualized educational support seem to nurture a partnership between parents and school (Friedman, Pavlović Babić, & Simić, 2015; Kovač-Cerović et al., 2016a).

Music Education in Serbia

The process of implementation and outcomes of inclusive education are context-dependent. Some authors recognizing the plethora of different conceptions of inclusive education suggested that we talk about different inclusions rather than inclusion (Dyson, 1999). Therefore, in order to understand the findings on individualized educational support ASN students receive in specialist music education in Serbia, the context in which it takes place will be described.

There are three levels of music education in Serbia: elementary music schools, secondary music schools, and higher music education. The primary education lasts for 2, 4 or 6 years (depending on the instrument), secondary – 4 years and higher – 4 + 1 years. Elementary music schools are attended in parallel with the primary schools, while secondary music schools may have their own departments for the general education or pupils can attend some other secondary school. At all levels the entrance exam is in place, ensuring that children who attend music education are musically gifted. Historically, music education in Serbia has been accessible for ASN students who are musically gifted – commonly referred to as “twice exceptional” students (Abramo, 2015). Nevertheless, the introduction of affirmative enrollment policies provides opportunities for ASN students

to enroll in secondary and higher education following different criteria. As a result, music education has become more diverse in terms of students' type and level of additional support needs.

Education in specialized music schools in Serbia is characterized by an individualized approach. The individualized approach may include personalizing the curriculum with opportunities to respond to the learner's needs, curriculum differentiation through changes in pace, complexity and teaching method, accelerated learning programs designed for gifted and talented students who are capable of working at a significantly faster pace and in greater depth than their peers. Lessons are delivered through individual or small group instruction, depending on the subject. Additionally, comparing with general education, education in specialist music schools is characterized by a lower student-teacher ratio.

Summarizing the above-mentioned, it seems that specialist music schools could be an environment conducive to the development of inclusive practices. However, the quality of inclusive education in Serbia so far has been explored mainly at the level of compulsory primary education. It remains unclear how inclusive educational policies translate to practices in specialized education, such as music education.

Aims

The study aims at exploring the process and outcomes of addressing ASN students within music education in Serbia. Research questions are focused on (a) additional support; (b) parental involvement; (c) outcomes on ASN students.

Method

Participants

The purposeful sample comprises data on 19 ASN students, 8 to 18 years old, attending music education in four music schools in Serbia. Out of 19 ASN students, 12 students receive education according to individual education plan with the adjusted curriculum (IEP1), two students according to individual education plan

with the modified curriculum (IEP2) and 5 students receive individualized education.

Instruments

Questionnaires on outcomes of ASN students were adapted from the previous studies on inclusive education in Serbia (Hrnjica, 2004; Kovač-Cerović, Pavlović Babić, Jokić, Jovanović, & Jovanović, 2016b), while questionnaires related to the provision of additional support and parental involvement were developed for the purpose of the research. Scales used proven to have satisfactory internal consistency ($0.65 \leq \alpha \leq 0.93$). Data on process and outcomes of additional support to ASN students included perspectives of ASN students, their parents, teachers and school psychologists, resulting in data triangulation (Denzin, 1970). However, data triangulation in this research design is not aimed merely at validation, but at deepening and widening understanding of the process (Olsen, 2004).

Data Analysis

The analysis included descriptive statistics for quantitative data and content analysis of open-ended questions.

Findings

Who are ASN Students in Music Education in Serbia?

The result of our study shows that the structure of students in music schools becomes rather diverse in terms of type and level of support. Based on the school associates' survey, group of ASN students is composed of: children with autism spectrum disorder (7), children with sight impairments (5), children with learning difficulties (3), children with motor difficulties (2), children with communication difficulties (1), children with neurological conditions (1). As for the level of support needed, the majority of ASN students require adaptations of the teaching/learning process (i.e., 12 students receive education according to IEP1 and 5 students receive individualized education), while two students receive education according to the

modified curriculum (IEP2). However, it remains unclear if these ASN students could be considered twice-exceptional.

Parents' and school psychologists' responses shed a light at this issue. Namely, when reporting on criteria for school choice, the parents of ASN students most frequently list the good reputation of a teacher and school (7) and home-school proximity (5) as criteria for choice. In line with this, parents expect that music education will contribute to the general development of their child ($M = 3.71$, $SD = 0.59$), while the expectations that a child will become a professional musician are the least present ($M = 3.31$, $SD = 1.08$) (Figure 1).

Similarly, assessment of school psychologists is that 33.3% of ASN students attending music schools do not show music giftedness.

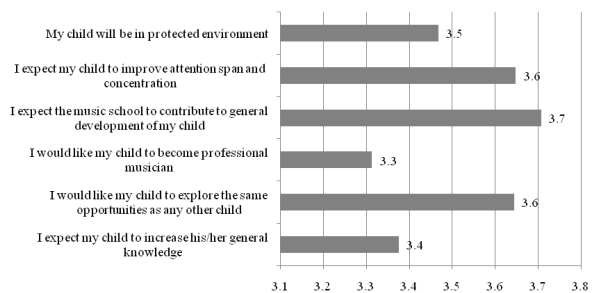


Figure 1. Parents' expectations from music education.

Our results cast a new light on the structure of students in music schools, suggesting that music schools become attractive for ASN students and their parents primarily due to schools' good reputation and accessibility.

What Kind of Additional Support do ASN Students Receive in Music Schools?

Parental involvement. A collaborative effort between classroom teachers, school associates and parents is needed to identify ASN students and implement strategies to meet their diverse needs. The majority of parents of ASN children (82%) report that they are actively engaged in the team supporting a child's education. Moreover, parents frequently act as personal assistants for their children (7). The new role of par-

ents as personal assistants requires additional exploration of its benefits and potential risks.

In-school support. School psychologists' responses indicate that support measures are diverse, oriented at changing environments and holistic support to a child's learning and development (Figure 2). 11.8% of parents report that they are mostly and 88.2% that they are completely satisfied with the IEP of their child.

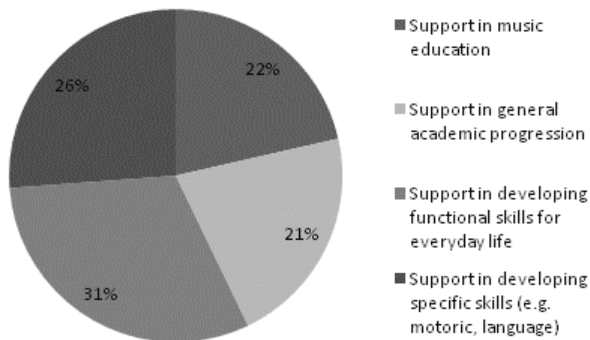


Figure 2. School psychologists' responses regarding the goal of support to ASN students.

Out-of-school support. ASN students could have needs that cross health, social, educational and functioning domains and require a multidisciplinary response. Therefore, inclusive education usually requires a broader and coordinated approach. The majority of ASN students in our study receive additional support outside of school (12), which in most cases involves speech therapy. The open question is if these services are stand-alone or there is alignment between types of support emerging from different sectors.

What are the ASN Student's Outcomes in Music Education in Serbia?

Multiple studies highlight a relationship between music learning and development across several domains (e.g., Forgeard, Winner, Norton, & Schlaug, 2008; Hallam, 2010; Hetland & Winner, 2004).

An important thing to consider before talking about the positive effects of

music education on various aspects of cognitive and emotional development is that they only occur when it is a pleasant experience for the child (Hallam, 2010). Therefore, the consensus among different stakeholders on high levels of ASN students' psycho-social wellbeing is promising finding (Figure 3). Namely, ASN students report on high wellbeing ($M = 3.47$, $SD = 0.59$), stressing efforts teachers put to support their learning ($M = 4.0$, $SD = 0.0$). Moreover, interaction with teachers is the aspect of inclusive education receiving the highest average grade from the perspective of ASN students ($M = 3.82$, $SD = 0.39$). A relatively low level of cognitive demand, indicates that tasks and activities for ASN students are adequately designed to enable their cognitive engagement. The above-mentioned findings suggest high competencies of teachers in music education to individualize educational support adequately and foster a range of wellbeing possibilities.

Yet, results suggest that music education is failing to address the problem of poor social interaction between ASN students and their peers. The items receiving the lowest ratings from the perspective of ASN students are related to peer interaction within ($M = 2.82$, $SD = 1.13$) and out of school ($M = 2.56$, $SD = 1.03$). These findings should be taken with caution, having in mind that students with autism spectrum disorder (ASD) consist of around one-third of our sample. Namely, findings of peer

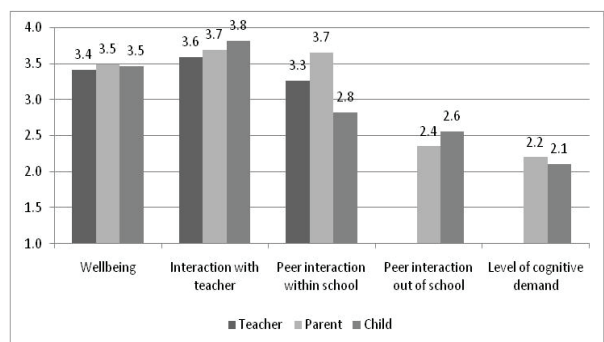


Figure 3. Perception of ASN students' outcomes in music education from the perspective of teachers, parents and ASN students.

interaction research on adolescents with ASD show that they tend to socialize less and seem to be more alone than their peers (Humphrey & Symes, 2011). For further understanding of the process leading to poor social interactions, individual and environmental aspects should be considered.

Conclusion

Specialist music schools are proven to be an environment which nurtures partnership with parents, provides quality pedagogical support for the majority of ASN students and ensures the progress of ASN students. However, support for the social interaction of ASN students with their peers seems to be an area in which music education is lagging behind.

Since the study was designed as descriptive, we should have in mind certain limitations. An apparent limitation of the study is the purposeful small size sample, which is conditioned by the number of ASN students in music schools. Another limitation is the assessment of ASN students' outcomes in music education through perceptions. We tried to overcome this limitation through the triangulation of data sources (Olsen, 2004).

Regardless of limitation, the study offers directions for further exploration of the quality of additional support to ASN students in music education.

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Music and Affect Regulation

Songs Perceived as Relaxing: Musical Features, Lyrics, and Contributing Mechanisms

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Abstract

How we listen to music has been changing rapidly in the last years, with online streaming becoming more predominant. Besides the gain in accessibility for the listeners, the growth of online services also affords easier access to data for musical analyses. A growing body of research has been showing that daily life music listening serves varied functions, from affect regulation to social bonding. More specifically, the reduction of stress responses is quite pertinent in the contemporary world, and recent studies have highlighted the importance of adequate musical choices. This study aimed to identify the characteristics of music that individuals perceive as favorable to relax and to compare it to the music perceived as unfavorable to relax. Furthermore, the study intended to explore the possibilities offered by the application programming interfaces (API) of services such as the music streaming *Spotify* and the lyrics database *genius* as sources for future work. Answers were collected through an online survey, where the participants provided examples of music tracks (favorable and unfavorable to relaxation). They also rated the contribution of several musical mechanisms to the (in)efficacy of the examples. Musical features were pulled from the *Spotify* API and the lyrics were retrieved from the *genius* API through the R package *spotifyr* and then analyzed. The discriminant functions for musical features and perceived mechanisms (Wilks' lambda: .611, $\chi^2(20) = 257.57$, $p < .001$) and for all the variables when lyrics were present (Wilks' lambda: .555, $\chi^2(26) = 202.80$, $p < .001$) were statistically significant. Relaxing and non-relaxing music

was successfully distinguished by perceived mechanisms, *Spotify* features, and two variables related to lyrics. The largest contributors for the discriminant function were the mechanisms *aesthetic value*, *genre/preference*, and *familiarity*, following by the *Spotify* features *energy* and *loudness*.

Introduction

Our need to relax is a fundamental one: it helps us to recover from stress, anxiety, and tension, and thus fosters our well-being and mental health. The process of relaxation can be defined as physiological (e.g., progressive muscle relaxation) or affective. In this paper, we adopt the latter approach to studying relaxation. Importantly, for clarity, a differentiation should be made between the strategy 'relaxation' and the affective goal 'to relax'. In the paper, we refer to the latter. Affect regulation is an umbrella term encompassing all the efforts of altering or creating an affective change, whether positive or negative (Baltazar & Saarikallio, 2016).

When feeling tense, anxious, or stressed, one expected goal is to relax. We define relaxation as an affective goal operationalized as a decrease in arousal levels and a slight increase in valence. Individuals seek to relax through varied activities – here we focus on music listening, which has consistently been found to serve different functions and help to achieve several goals (for a review, see Baltazar & Saarikallio, 2016). Music

listening is often used for affect regulation (Van Goethem & Sloboda, 2011) and, more specifically, for relaxing (Thayer, Newman, & McClain, 1994). Previous studies have shown that individuals increase their music listening when feeling more stressed (Getz, Marks, & Roy, 2014) and that there are several beneficial outcomes when they do so (Pelletier, 2004). Relaxation through music listening has been found to occur in an interplay of musical mechanisms and regulation strategies (Baltazar, Västfjäll, Asutay, Koppel, & Saarikallio, 2019; Saarikallio, Baltazar, & Västfjäll, 2017). Baltazar et al. (2019) conducted an experiment where participants selected relaxing and non-relaxing music and also adequate and inadequate strategies for the goal of relaxing/calming down. After a stress-inducing task, the participants were asked to relax by listening to music and employing the regulation strategy instructed. It was observed that both variables had a significant impact on the success of stress reduction, meaning that when listening to the “right track” and using the “right strategy” the participants relaxed the most. Furthermore, the effect of listening to adequate music (versus inadequate) seemed to be larger than the one of the regulatory strategy.

The selection of music for each moment and the affective goal is often described as immediate, automatic, effortless (DeNora, 1999). Indeed, generally, individuals are quite successful in attaining their desired states through self-selected music and, importantly, their selections are usually more helpful than the ones made by experimenters or experts (Groarke, Groarke, Hogan, Costello, & Lynch, 2019; Liljeström, Juslin, & Västfjäll, 2012). This suggests that familiarity and musical preferences play a crucial role in emotion induction and regulation through music listening.

Previous literature generally describes relaxing music as having a slow tempo, medium pitch, soft non-percussive timbre, gentle contours in melody, flowing beat, simple rhythmic structures, consonant harmony, major mode, and soft loudness (for reviews on the matter, see Tan, Yowler, Super, & Fratianne, 2012; Västfjäll, 2002). However, since most of the studies on musical features are based on expert-selected

samples (e.g., Tan et al., 2012), it is still underexplored how these results transfer to self-selected samples.

Aims of the Study

- 1) Identify musical attributes that best differentiate relaxing from non-relaxing music.
- 2) Identify mechanisms perceived as most impacting for these effects
- 3) Explore the lyrics' sentiment content and its contribution

Additionally, an underlying motivation of this study was to test the usability of the data provided by Spotify and genius.com through their Application Programming Interfaces (APIs) in the context of music research.

Method

Participants

The participants were recruited from the population of registered students and staff of Linköping University, Sweden. One hundred and sixty participants answered the survey, from which 121 provided valid and complete answers (48.8% women, 49.9% men, 1.7% selected ‘other’). Ages ranged from 18 to 36 ($M = 23.3$, $SD = 3.4$). The sample can be characterized as highly engage in music: 79.3% reported listening to music six or more times per week and only 9.2% reported listening less than 5 times per week. Seventy percent of the participants have played some instrument or sang, and from these 28 percent still does. Most of the participants had music classes in school (44.6% up to secondary education), and only three participants had musical training at a conservatory or university levels. As an incentive, the participants were given the chance of entering a raffle for 15 prizes of 100 SEK (approximately 9.60 EUR/10.75 USD).

Procedure

The data were collected through an online survey in Qualtrics (12.2016, Provo, UT). Besides the demographic questions, participants were asked to provide examples of music tracks under the following scenario: “Imagine you are

feeling anxious, stressed or nervous, but you need to calm down in order to be able to focus on your work. Whilst in this situation, you decide to listen to some music to help you relax. Which would be good examples of music pieces that would work for you in this kind of situation? Please think of three music pieces that you have used in the past to calm down. Write down the title and artist. And which music pieces you are familiar with and you like but would not work well in this stressful situation, with the same goal of calming down (they can be useful for other situations)? Please think of three examples that would not work for you. Write down the title and artist". The data from participants that provided at least one musical example were kept for further analyses. In total, 618 musical examples were collected (351 relaxing musical pieces and 267 non-relaxing).

Contributing musical mechanisms. For each example that they provided, the participants were asked to rate a list of musical mechanisms in regards to their contribution to the relaxing/non-relaxing effect by using a continuous slider from "No contribution" to "Very strong contribution". The list of mechanisms was based on previous studies (Baltazar & Saarikallio, 2016, 2019) and was presented as a) Lyrics, b) Rhythm/ pace, c) Music's genre/ my preference, d) Identification with the artist, e) Familiarity with the music, f) Memories, g) Beauty/aesthetic value/ performer's high skill, h) Emotion/ mood expressed, i) Visual images induced by the music, j) Acoustic features (e.g., timbre, sounds, instruments, roughness/softness, etc.).

All the 618 examples were rated in terms of contributing mechanisms.

Musical features. In terms of audio descriptors, the data were pulled from Spotify's application programming interface (API) by using the R package *spotifyr*, version 1.1.0 (Thompson, Parry, Phipps, & Wolff, 2017). After providing the tracks' titles and artists' names, *spotifyr* returns the audio features and other metrics that Spotify has computed for each track. The audio features compiled for this study and corresponding descriptions can be consulted in Table 1. The duration of the tracks was also extracted in order to calculate the lyrics' word density. The

Table 1. Audio features and corresponding descriptions provided by Spotify's API.

Audio Features	Description
Energy	Energy is a measure from 0.0 to 1.0 and represents a perceptual measure of intensity and activity. Typically, energetic tracks feel fast, loud, and noisy. Perceptual features contributing to this attribute include dynamic range, perceived loudness, timbre, onset rate, and general entropy.
Valence	A measure from 0.0 to 1.0 describing the musical positiveness conveyed by a track. Tracks with high valence sound more positive (e.g. happy, cheerful, euphoric), while tracks with low valence sound more negative (e.g. sad, depressed, angry).
Danceability	Danceability describes how suitable a track is for dancing based on a combination of musical elements including tempo, rhythm stability, beat strength, and overall regularity. A value of 0.0 is least danceable and 1.0 is most danceable.
Acousticness	A confidence measure from 0.0 to 1.0 of whether the track is acoustic. 1.0 represents high confidence the track is acoustic.
Instrumentalness	Predicts whether a track contains no vocals. "Ooh" and "aah" sounds are treated as instrumental in this context. Rap or spoken word tracks are clearly "vocal". The closer the instrumentalness value is to 1.0, the greater the likelihood the track contains no vocal content.
Liveness	Detects the presence of an audience in the recording. Higher liveness values represent an increased probability that the track was performed live.
Loudness	The overall loudness of a track in decibels. Loudness values are averaged across the entire track. Loudness is the quality of a sound that is the primary psychological correlate of physical strength (amplitude). Values typical range between -60 and 0.
Speechiness	Speechiness detects the presence of spoken words in a track. The more exclusively speech-like the recording (e.g., talk show, audiobook, poetry), the closer to 1.0 the attribute value.
Tempo	The overall estimated tempo of a track in beats per minute.

Retrieved and adapted from <https://developer.spotify.com/documentation/web-api/reference/tracks/get-audio-features/>

features of 65 tracks were not successfully extracted (due to incorrect writing of title/artist by participants or by its unavailability in Spotify's services).

Lyrics. Data were extracted from the API of a lyrics' web database (Genius) by using the functions from the R package *genius* (Parry & Barr, 2019) that are integrated into the package *spotifyr*. The lyrics were pre-processed with *tidytext* version 0.2.0 (Silge & Robinson, 2016). Then, the emotional content of the lyrics was explored through two approaches: categorical and dimensional. The categorical approach was effectuated through the function *get_sentiments* from *tidytext*, using the *nrc* lexicon (Mohammad & Turney, 2013). For each track, a score was obtained for the emotions sadness, joy, anger, trust, and fear. As for the dimensional approach, the sentiment polarity offered by the package *sentimentr*, version 2.7.1 (Rinker, 2019) was used. This parameter is equivalent to valence, ranging from negative to positive. The function pulls the words' sentiment ratings from polarized dictionaries while taking into account valence shifters (e.g., 'not', 'really', 'very', 'but', etc.). Finally, lyrical density was calculated by dividing the number of words in the lyrics by the duration of the track.

Lyrics were found for around 63% of the cases. Amongst the tracks with lyrics pulled from the database, 95.6% received a complete description in terms of categorical and dimensional sentiment scores (a small percentage had lyrics in other languages than English and, therefore, could not be compared with the polarized dictionary).

Statistical Analyses

Discriminant function analysis (DFA) was chosen to assess the contribution of each independent variable to the categorization of musical examples as relaxing or non-relaxing. DFA is a multivariate test of the difference between groups for a categorical dependent variable and interval independent variables. This analysis provides an indication of how much the two groups of music differ (via the group centroids) and what are the variables that best discrimi-

nate between groups (via discriminant loadings). Pairwise comparisons (univariate ANOVAs) were performed to detect systematic mean differences between relaxing and non-relaxing music. Finally, the performance of the DFA functions was assessed through the percentage accuracy in classifying cases into two groups.

Results

The analyses occurred in two steps: first, the whole sample was analyzed in terms of perceived mechanisms and audio features, and then the subsample with lyrics was analyzed in terms of all the discriminating variables. Due to a statistically significant Box *M* test, which indicates that covariances are not equal across groups, the discriminant analyses were conducted using separate covariance matrices. For the same reason, discriminant loadings were preferred over standardized coefficients because the former are not affected by collinearity.

The first DFA was derived for two groups (relaxing and non-relaxing music) using the discriminating variables related to self-perceived musical mechanisms, Spotify's audio features, and lyric density (tracks with no lyrics were scored as zero). The discriminant function was statistically significant (canonical $R = .62$, Wilks' $\Lambda = .61$, $\chi^2(20) = 257.572$, $p < .001$) and the highly divergent group centroids indicate that the groups were successfully discriminated by the function (relaxing music: $.686$, non-relaxing music: $-.924$). Table 2 presents the descriptive statistics of the discriminating variables, the structure matrix from the discriminant function, and the mean comparisons between groups (relaxing v non-relaxing).

The discriminant loadings in the structure matrix indicate the correlations between the discriminant variables and the function, which are a reflex of the contribution of each variable to the final model. Values equal or higher than $.20$ denote strong discriminant power. In Table 2, the variables with high discriminant loadings are marked in darker grey shading. The highest loading variables were the self-perceived mechanisms *aesthetic value*, *genre/preference*, *familiarity*, the musical features *energy*, and *loudness*.

Table 2. Descriptive statistics and discriminant function for total sample.

Discriminating variables (a)	Type of variables	Relaxing music (n = 307)		Non-relaxing music (n = 228)		Structure matrix	Mean comparisons	
		M	SD	M	SD		dl	F(1, 533)
Aesthetic value	mechanism	59.443	33.587	27.136	31.596	0.613	127.287	***
Genre/ Preference	mechanism	61.420	29.260	33.763	30.723	0.575	112.001	***
Familiarity	mechanism	52.857	32.355	28.022	29.392	0.496	83.281	***
Energy	audio	0.514	0.264	0.686	0.239	-0.422	60.265	***
Loudness	audio	-10.309	6.191	-6.789	3.550	-0.418	59.244	***
Acoustic features	mechanism	67.153	28.117	49.496	33.960	0.357	43.165	***
Valence	audio	0.346	0.229	0.463	0.241	-0.311	32.879	***
Acousticness	audio	0.379	0.370	0.219	0.297	0.291	28.719	***
Instrumentalness	audio	0.230	0.354	0.098	0.243	0.263	23.518	***
Word density	lyrics	0.073	0.068	0.101	0.084	-0.227	17.474	***
Speechiness	audio	0.060	0.059	0.085	0.084	-0.215	15.656	***
Rhythm	mechanism	73.283	25.855	63.263	33.081	0.213	15.457	***
Identification	mechanism	30.358	31.828	21.096	28.193	0.19	12.197	***
Danceability	audio	0.494	0.173	0.542	0.174	-0.172	9.997	**
Liveness	audio	0.174	0.155	0.200	0.186	-0.097	3.219	
Tempo	audio	121.031	31.582	125.274	28.862	-0.087	2.54	
Contagion	mechanism	69.980	28.077	66.053	31.984	0.082	2.272	
Visual imagery	mechanism	42.831	35.870	40.132	35.107	0.047	0.754	
Memories	mechanism	37.997	34.795	36.794	36.520	0.021	0.117	
Lyrics	mechanism	52.010	37.238	50.895	37.287	0.019		

Note. dl = discriminant loadings (i.e., correlations between discriminating variables and standardized canonical discriminant function)

(a) Ordered in descending order by size of correlation with function

* $p < .05$; ** $p < .01$; *** $p < .001$

In lighter shading, one can see the variables that fell short from the cut-off point score but still achieved statistical significance in the mean comparisons between groups. These include *identification with artist or song* and *danceability*. Looking at the sign of the discriminant loadings and at the group centroids (relaxing music: .686, non-relaxing music: -.924), one can determine to which group each variable is the closest¹.

¹ For example, the positive value of the discriminant loading for *aesthetic value* makes it closer to the centroid attributed to relaxing music. Therefore, a high rating in aesthetic value positively predicts the categorization of that example as relaxing music. On the other hand, high *energy* predicts the

The accuracy of the function was assessed by the ability to categorize each musical track as either relaxing or non-relaxing. The first DFA achieved an overall classification accuracy of 80.4% (81.1% for relaxing music, and 79.4% for non-relaxing music), which is much higher than the expected accuracy by chance (50%).

The second discriminant DFA was derived for the same groups (relaxing and non-relaxing music) using all the discriminating variables (perceived musical mechanisms, audio features, and lyrics data – density and sentiment scores). The discriminant function was statistically significant for the group of non-relaxing music (while the opposite is also true: low energy is more likely observed in the relaxing music).

nificant (canonical $R = .67$, Wilks' $\Lambda = .56$, $\chi^2(26) = 202.801$, $p < .001$) and the group centroids were highly divergent (relaxing music: .815, non-relaxing music: -.980). See Table 3 for descriptive statistics, structure matrix, and mean compari-

sons between groups. The shading follows the same coding used in Table 2. The strongest discriminant variables in this subsample were the mechanisms *aesthetic value*, *genre/preference*, and *familiarity*, and the audio features *loudness*

Table 3. Descriptive statistics and discriminant function for subsample with lyrics.

Discriminating variables (a)	Type of variables	Relaxing music (n=196)		Non-relaxing music (n = 163)		Structure matrix	Mean comparisons	
		M	SD	M	SD		dl	F(1, 357)
Aesthetic value	mechanism	59.005	33.609	25.951	31.299	0.565	91.597	***
Genre/ Preference	mechanism	62.776	28.612	33.534	30.617	0.552	87.210	***
Familiarity	mechanism	54.760	30.932	27.669	29.520	0.498	71.144	***
Acoustic features	mechanism	66.189	28.239	47.110	33.762	0.344	33.995	***
Loudness	audio	-9.017	4.300	-6.624	3.482	-0.338	32.396	***
Energy	audio	0.539	0.237	0.683	0.242	-0.336	32.396	***
Valence	audio	0.368	0.223	0.473	0.246	-0.250	17.923	***
Word density	lyrics	0.112	0.054	0.138	0.069	-0.242	16.724	***
Identification	mechanism	32.250	31.913	20.595	28.793	0.213	12.964	***
Rhythm	mechanism	72.628	25.148	61.779	33.593	0.206	12.213	***
Acousticness	audio	0.327	0.338	0.222	0.297	0.183	9.581	**
Lyrics	mechanism	62.546	31.994	52.110	36.958	0.169	8.220	**
Speechiness	audio	0.064	0.069	0.085	0.087	-0.155	6.924	**
Anger	lyrics	0.045	0.050	0.061	0.071	-0.140	5.603	*
Instrumentalness	audio	0.103	0.240	0.065	0.195	0.096	2.645	
Danceability	audio	0.523	0.157	0.546	0.159	-0.083	1.957	
Sadness	lyrics	0.067	0.060	0.076	0.084	-0.073	1.533	
Visual imagery	mechanism	43.403	34.010	40.227	34.732	0.052	0.761	
Joy	lyrics	0.088	0.093	0.096	0.103	-0.046	0.618	
Polarity	lyrics	0.038	0.163	0.024	0.188	0.044	0.555	
Trust	lyrics	0.073	0.074	0.079	0.084	-0.038	0.414	
Liveness	audio	0.174	0.146	0.181	0.149	-0.029	0.237	
Memories	mechanism	37.908	35.232	36.233	36.888	0.026	0.193	
Contagion	mechanism	68.153	28.686	66.933	30.714	0.023	0.151	
Tempo	audio	123.928	31.647	124.765	28.811	-0.015	0.067	
Fear	lyrics	0.070	0.068	0.071	0.081	-0.008	0.020	

Note. dl = discriminant loadings (i.e., correlations between discriminating variables and standardized canonical discriminant function)

(a) Ordered in descending order by size of correlation with function

* $p < .05$; ** $p < .01$; *** $p < .001$

and *energy*. In comparison to the first function, some differences were observed in this subsample of pieces with lyrics. Namely, the perceived mechanisms *acoustic features*, *identification with artist/song*, and *lyrics* increased their contribution. The audio features *acousticness* and *speechiness*, in turn, decreased their contribution to the function, while *instrumentalness* and *danceability* dropped to non-significant. In terms of lyrics-related variables, word density remained a strong contributor and anger emerged as a weak contributor to the function. The remaining lyric-related variables did not contribute to the function.

This second function was equally successful in classifying group membership (83.6% of the cases and, more specifically, 82.7% for relaxing music and 84.7% for non-relaxing music).

Discussion

This study reached its aims successfully: musical features, contributing mechanisms, and lyrics-related variables discriminated with high accuracy between relaxing and non-relaxing music. As far as we know, this is the first music research study based on data scraped from the APIs of Spotify and genius².

Overall, relaxing music was characterized by high scores in *aesthetic value*, *genre/preference*, *familiarity*, *acoustic features*, *acousticness*, *instrumentalness*, *rhythm*, and *identification with artist or song*. On the other hand, non-relaxing music was characterized by high scores in *energy*, *loudness*, *valence*, *word density*, *speechiness*, and *danceability*.

One innovative aspect of this study was the inclusion of three distinct types of data: self-report (perception of the contribution of each musical mechanism), audio features (provided by Spotify), and lyrics-related variables (word density and sentiment content). Although significant variables emerged from all the three categories, lyrics were the least successful cate-

gory in discriminating relaxing music. Amongst the lyrics-related variables, word density was the most prominent one. Non-relaxing music revealed a higher density than relaxing music, which was a tendency supported by *speechiness* and *instrumentalness*: non-relaxing music had a higher presence of spoken and sang words. This does not mean that relaxing music did not have lyrics – on the contrary, almost two-thirds of relaxing music did have lyrics (196 tracks out of 307), which contrasts with previous research that has found that relaxing music tends not to have lyrics nor vocalizations (Tan et al., 2012). This difference might be partly accounted for by the source of music: our study analyzed music that participants reported listening in daily life, whereas most of the previous research used expert-selected music based on classical repertoire.

Regarding the sentiment of the lyrics, *anger* emerged as a contributing (albeit weak) variable in the distinction between relaxing and non-relaxing, with non-relaxing music showing a higher presence of this emotion. Research on musical choices has been showing two clear patterns: people tend to select music that matches their mood or that helps them reach the desired state. Given the goal to relax, anger would not be an instrumental emotion and the need for self-regulation would direct them away from negative stimuli. There is an overall lack of studies on how lyrics inform this kind of decisions, but the results obtained by Ali and Peynircioğlu (2006) suggest that calm and happy music might be particularly affected when negative lyrics are present.

No similar patterns were found regarding the other sentiment variables (polarity, sadness, joy, trust, fear). The adopted approach of sentiment extraction from lyrics is limited and produces a rather coarse description of the emotional content of the lyrics. Different approaches should be adopted in future studies for comparison (e.g., rating of the overall mood of each piece by experts or by participants; inclusion of other elements of language in the analyses). An alternative explanation is that lyrics themselves do not differ greatly between relaxing and non-relaxing music. That could be expected from relaxing

² Some exploratory work has been done with the package *spotifyr* and published in the form of blog posts. We acknowledge such material as an inspiration and guide in the early stages of this study (e.g., Elvers, 2018; Thompson, 2017).

music, which is often described in the literature as not having lyrics (Tan et al., 2012). Besides, previous studies suggest that lyrics have a lower impact in the perception of emotions than melodies (Ali & Peynircioğlu, 2006) and that individuals tend to rely more on the expectations towards certain types of music (calm, relaxing, in this case) than on their lyrics (Susino & Schubert, 2019). In fact, looking at the subsample with lyrics, the perceived contribution of this mechanism by the participants to the relaxation effect had a rather weak discriminant loading.

The self-reported contribution of musical mechanisms and audio features were both strongly represented by discriminant variables. The former was present in the top three contributions to the discriminant function for the total sample (*aesthetic value, genre/preference, and familiarity*) and in the top four in the subsample with lyrics (*aesthetic value, genre/preference, familiarity, and acoustic features*). Such a significant contribution from self-reported mechanisms highlights the value of adopting a combination of approaches (self-report and computational). The kind of musical mechanisms identified as significantly varying in the function of the music (relaxing or non-relaxing) could have not to be derived from computational methods alone since they are so-called individual-related mechanisms (Baltazar & Saarikallio, 2019).

Despite the role of preferences and familiarity, some patterns tended to be shared by the participants, as seen by the audio features that contributed to the discriminant function. Loudness, energy, valence, acousticness, instrumentality, speechiness, and danceability successfully differentiated relaxing from non-relaxing music, independently of individual factors. Overall, non-relaxing music was louder, more energetic, more positively valent, higher in spoken words, and more danceable, whereas relaxing music tended to be acoustic and instrumental. According to the model by Baltazar and Saarikallio (2019), audio features increase in significance for goals such as relaxation (categorized as repair- or pleasure-focused), whereas individual-dependent aspects (such as aesthetic appreciation, memories, identification

with artist/song...) are more central to affect- or cognition-focused self-regulation. It could be hypothesized that if the participants had been instructed to think of a scenario where they were trying to cope with a problematic situation, there would have been fewer audio features emerging as a discriminant.

The role of aesthetic appreciation is particularly interesting since its contrast between groups was the highest contributor to the discriminant functions. Aesthetic value is identified by Brattico, Bogert, and Jacobsen (2013) as one of the components of musical aesthetic experiences. Considering that participants chose only music they appreciated, it is more likely that the disparate scores stem from the pleasant sensations related to aesthetic experiences rather than from judgments of liking. According to the work of Brattico and Varankait (2019), musical aesthetic experiences are empowering given their contributions to mood, cognitive functions, happiness and quality of life. This phenomenon can also be understood from the angle of musical pleasure, whose strongest emotional constituent seems to be relaxation (Saarikallio, Maksimainen, & Randall, 2019). The present results suggest that participants capitalize on aesthetic and pleasurable experiences as a protective factor against stress.

In terms of absolute rating of contributing mechanisms, the *rhythm/pace of the music* received the highest score from the participants in the relaxing examples and the second highest in the non-relaxing examples. Surprisingly, tempo did not significantly differ between groups and did not fall in the *slow* category typical of relaxing music. It seems thus that the participants' perception might be informed by the rhythm's structure or accentuation (Levitin, Grahn, & London, 2018).

Contagion, the mechanism through which individuals feel the emotion/mood expressed by the music (Juslin & Västfjäll, 2008), was highly rated by the participants independently of the group. Even though we cannot ascertain which emotions were induced by contagion, we can hypothesize that participants felt different emotions in the function of the group and recognized their favorable/unfavorable impact as relatively equal.

Some changes were observed in the discriminating power of the independent variables when looking only at the songs with lyrics. Understandably, the mechanism *identification with the artist/song* increased its discriminant loading, as this effect relies greatly on the message and values transmitted by the lyrics (Lippman & Greenwood, 2012; Van den Tol & Edwards, 2013). As expected, identification processes were especially beneficial for relaxing music. The increase observed in the mechanism *acoustic features* is intriguing, as it does not provide many answers regarding what sonic attributes might have become more relevant when lyrics are present. One hypothesis is that participants valued characteristics specific to the vocals (Demetriou, Jansson, Kumar, & Bittner, 2018).

Conclusion

The present study observed known principles of emotion induction through music in self-chosen samples. Besides confirming that individuals are skillful in selecting appropriate music to relax and that there are transversal features for relaxing music, the results highlight the role of individual-dependent mechanisms such as aesthetic appreciation and familiarity. We propose a stronger focus on participant-selected music and perceived musical mechanisms in future studies, as well as a holistic approach in terms of data sources.

The audio features provided by Spotify's API revealed to be useful and reliable, yielding similar results as previous feature extraction studies. In terms of lyrics' extraction, the results obtained – whilst not proliferous – are promising for future research with more sophisticated sentiment analyses.

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Music Listening and Heart Rate Variability

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Abstract

Listening to music is a complex phenomenon, involving psychological, emotional and physiological responses. Different mechanisms leading to music-evoked emotions have an effect on many physiological processes, such as regional heart activity, heart rate, heart rate variability (HRV), blood pressure and respiratory rate. HRV, variation in interbeat intervals, is a measure of autonomic nervous system (ANS) activity. Some HRV parameters can be used as an index of cardiac vagal tone. Our aim was to measure the effects of music listening on the modulation of ANS via the measurement of HRV. Thirty healthy adult volunteers, mostly students, aged between 21 and 40 years, were exposed to music listening via headphones in a supine position, between 7 a.m. and 14 p.m. HRV was analyzed from interbeat intervals recorded via ECG. Musical preferences, musical background and feelings of pleasantness or unpleasantness were documented with the use of questionnaires. Each person participated in three recording sessions, with distinct protocols: 1) preselected music comprised of four different genres (classical music, baroque music, Gregorian chants and ambiental music), 2) participant self-selected music and 3) silent control. The music chosen by the participants varied greatly compared to music chosen by the researchers in terms of tempo, genre and elicited arousal. Participants reported self-selected music to be more pleasant than the music chosen by the researchers. Listening to music showed a trend in decreasing activity of the parasympathetic (vagal) ANS function when compared to baseline conditions (resting HRV) or when compared to control (silence), although no statistically significant difference was found.

Introduction

Listening to music is accompanied by changes in neurological, psychological and physiological functions (Chanda & Levitin, 2015). Different mechanisms leading to music-evoked emotions have effects on regional heart activity, heart rate, heart rate variability (HRV), blood pressure and respiratory rate (Koelsch & Jäncke, 2015). Music yields a variety of different physiological effects and can act as a means of physiological excitation or relaxation. Music listening also modulates the function of the autonomic nervous system (ANS) by changing the relationship between sympathetic and parasympathetic system activity. A stress-reducing effect of inhibition of the sympathetic nervous system and activation of the parasympathetic nervous system has been considered as one of the beneficial effects of music, although the underlying mechanisms and dynamic changes in simpatico-vagal balance remains to be fully elucidated (Finn & Fancourt, 2018; Ooishi, Mukai, Watanabe, Kawato, & Kashino, 2017).

Some parameters of heart rate variability (HRV), determined from the variation in interbeat intervals, are commonly used measures of parasympathetic activity (index of cardiac vagal tone) and are correlated with the outcome of different clinically relevant conditions (García Martínez et al., 2017). HRV analysis is also often used in psychophysiological studies, the results of which are acknowledged to be connected with self-regulation at the cognitive, emotional, and social levels (Park, Vasey, Bavel, & Thayer, 2014). Although HRV is a simple method, it can be easily misinterpreted, as there are numerous

factors influencing it (previous sporting activity, smoking, alcohol, coffee, body weight, age, gender, circadian rhythm, disease, medications, and others) (Laborde, Mosley, & Thayer, 2017).

Previous studies of physiological effects elicited by different music genres show that tempo affects the arousal, whereas major/minor mode affects mood (Husain, Thompson, & Schellenberg, 2002). Nevertheless, due to the application of very heterogeneous musical stimuli in different studies, there is inconsistency when the effects of specific musical stimuli on ANS are being determined along with corresponding cardiovascular changes and therefore its impact on clinical settings (Koelsch & Jäncke, 2015). Currently, there are no general guidelines for music listening in clinical settings, as the studies vary in musical protocols and findings. Our aim was to investigate the effects of music on the modulation of the ANS via the measurement of HRV. We evaluated the hypothesis that music listening is a simple non-pharmacological method that can be used to influence the listener's psychophysiological state.

Methods

Participants and Experimental Protocol

Thirty volunteers (8 males and 22 females) aged from 21 to 40 years, mostly students (83%), were exposed to music, which they listened to via headphones (Table 1).

Table 1. Basic characteristics of the participants.

	Mean [SD]
Age [years]	25 [4]
Body mass index [kg/m ²]	22 [3]
Waist to hip ratio	0.81 [0.1]
Importance of music in participants' daily life on a 7-point Likert-type scale (7 = very important)	6.1 [0.9]

The subjects were asked not to take stimulants or consume large meals before the experiment, to sleep normally and not to exercise extensively on the day before the experiment.

Before the experiment, a questionnaire was given to collect data on the amount of sleep and exercise they had the previous day, the consumption of food and stimulants (caffeine, cigarettes, alcohol) before the experiment, their medical status and their connection to music (Table 1). Participants were mostly healthy with four participants being overweight, two participants on antidepressives and one on antihistamine medication at the time of the experiment.

The questionnaire also included questions regarding musical background: musical education and frequency of engagement with music (active or passive listening) (Table 2). Half of the participants had a certain level of musical education (53%), half of the participants had none (40%) or were self-taught (7%).

Table 2. Engagement with music.

	Never	Less than 4 times a month	1 time per week	Several times per week	Everyday
Frequency of active engagement with music (playing an instrument, sing or compose) [%]	37	17	13	23	10
Frequency of actively choosing music for listening (at home or on the way) [%]	0	13	3	30	53

All the experiments were performed at the facilities of the Institute of pathological physiology of the Medical faculty in Ljubljana. Measurements were taken while participants were alone in a quiet room, lying in a supine position on an examination table, between 7 a.m. and 14 p.m., with an ambient room temperature of 21 to 23° C.

Each participant was recorded with three study protocols: 1) preselected musical pieces

comprising of 4 different genres (one composition per genre, random order), 2) self-selected musical pieces by each participant and 3) control without music. The music listening protocol comprised of three parts, the first being a baseline recording (10 minutes of quiet rest), the second being intervention or reactivity phase (4 times of 5 minutes of music with a 30-second pause in between) and the third, a post-intervention recovery period (10 minutes of quiet rest). Before the session, participants listened to a short demo of the music they would be listening to during the protocol and were asked on how they felt about each of the presented musical pieces (level of pleasantness on a 7-point Likert-type scale) and if they are familiar with the musical piece (binary yes or no answer). The level of pleasantness for each piece was then recorded again immediately after the session. Sound levels were controlled for and were between 55 and 70 dB. The control protocol with quiet rest had the same overall length as the two musical protocols (41.5 minutes).

Three lead ECG (0.05 – 100 Hz, AHA) was continuously recorded with a data acquisition unit (Biopac M35), Ag-AgCl electrodes were placed on the participants' torso (AHA placement). Respiration rate was controlled for with a respiration belt transducer (Biopac Systems). The study was approved by the National Medical Ethics Committee of the Republic of Slovenia and all participants signed a consent form.

Music Set Self-selected by the Participants

Experimenters prepared a mix of each participant's favorite songs and artists, based on a list given by the participant. Each playlist contained four pieces, each piece was comprised of one 5-minute-long section of a song or out of two 2.5 minutes long sections of two songs with a soft passage in between. Tempo, genre, and elicited arousal were determined for each user-selected piece. The tempo was measured in beats per minute (BPM), genres were determined broadly (no subgenres were used) and elicited arousal for each piece was determined to be either "relaxing" or "exciting". Each playlist was therefore described with tempo range,

general arousal (in cases where there were two pieces marked as exciting and two as relaxing, the category "ambivalent" was used) and the genres used.

Music Set Prepared by the Researchers'

For the experimentalists' playlist, we decided to use Bach's and Mozart's music, a Gregorian chant and an ambient piece, genres that usually show the most beneficial effects on well-being (Campbell, 2009; Dryden & Vos, 2001; Habe, 2005). The inclusion criteria for the musical sections were as follows: less well-known musical pieces of 5 minutes in length, with a tempo of 60 to 85 BPM, they had to begin and end softly (not in the middle of a phrase) and without any surprising elements, overly repetitive and slow parts. We used the standard tuning of the recordings.

A Gregorian chant was used because of its repetitiveness, steadiness and predictability of the music (Almeida & Silva, 2012; Gatti, 2005). After consulting with a specialist, we chose a chant without instrumental accompaniment, with rather low pitched vocals, which carry a "bordun" voice (a constant underlying tone).

Bach's music was chosen due to its constant tempo, which gives the listener the feeling of flow (there are no sudden and sharp interruptions). It is believed that listening to baroque music may encourage the production of alpha waves in the brain, which is connected to feelings of relaxation and calmness (Dryden & Vos, 2001; Gu, Zhang, Zhou, & Mei, 2014). We created a list of fifteen different musical pieces, which all met the proposed criteria (all of them also being instrumental pieces) and after careful listening, J. S. Bach: *Orchestral Suite No. 2, Overture* was chosen.

W. A. Mozart's music was chosen mainly because of its balance regarding harmony, pitch range and melodic formation (Campel, 2009; Habe, 2005). Harmonical features are mainly very predictable and simple, the pitch is never extremely high or low and the melodic forms are gradual, without large jumps. The music keeps a fine balance between the excitation and relaxation of the listener. Going through

Mozart's music, we excluded most of the vocal repertoire, focusing on the instrumental pieces with an accurate tempo. Very few musical pieces maintained the right tempo and included the selected features for the desired period of time. The final choice was W. A. Mozart: Symphony No. 29, Andante.

Ambiental music was also chosen because of its steadiness and calmness. Natural sounds, such as bird chirps and the sound of water flowing were included, but in a combination with a steady pulse and instrumental accompaniment. The piece we chose is T. Kokubo: The Blue Planet Seen Far Away.

Heart Rate Variability

HRV is derived from interbeat intervals. ECG recordings were manually checked for artifacts and ectopic beats, which were excluded and RR intervals exported (BSL PRO 4.1). Selected time domain and frequency domain parameters were calculated based on 5-minute windows with package RHRV (García Martínez et al., 2017) in statistical programming language R:

- SDNN – standard deviation of all normal-to-normal interbeat intervals, the estimate of overall HRV
- RMSSD – root mean square of successive interbeat differences, representation of vagal tone
- pNN50 – the percentage of successive normal sinus RR intervals than 50 ms, representation of vagal tone
- HF – the power of high-frequency range (0.15 – 0.4 Hz), corresponds to respiratory sinus arrhythmia associated with vagal tone. HF was calculated with Welch's periodogram and fast Fourier transform.

Statistical Analysis

Statistical analysis of the level of pleasantness was performed using statistical programming language R version 3.5.3 (R Core Team, 2017). Since data were not normally distributed (Shapiro-Wilk normality test: $P < 0.05$), data were analyzed with a nonparametric test (Pairwise Wilcoxon Rank Sum Test).

Statistical analysis of changes in HRV parameters during a time and between study groups was performed with SigmaPlot (Systat).

Results

Playlist Characteristics

The genres and subgenres used in the participants' self-selected playlists were very diverse. Genres were categorized into six groups and assigned to the individuals' playlists (percentage represents the number of times one form of the genre is represented in thirty individual playlists). There was no limitation on the number of genres represented in one playlist:

- Pop music (80%)
- Rock music (57%)
- Classical music (33%)
- Ethno music (10%)
- Electronic music (23%)
- Rap music (7%)

Participants' playlists also varied a great deal in terms of speed. We enlisted each playlist into one out of six selected groups with average tempo:

- Slow tempo, 30 – 70 BPM (10%)
- Slow – medium tempo, 50 – 90 BPM (20%)
- Medium tempo, 70 – 100 BPM (17%)
- Medium – fast tempo, 90 – 120 BPM (7%)
- Fast tempo, 100 – 140 BPM (10%)
- Diverse tempo (it enlists into more than one of the above-listed groups) (37%)

The elicited arousal of the participant's playlist was categorized into three groups. Each playlist was enlisted into one of the three selected groups:

- Exciting (with at least 3 out of 4 pieces of playlist exciting) (43%)
- Relaxing (with at least 3 out of 4 pieces of playlist relaxing) (27%)
- Ambivalent (two pieces of playlist were exciting and two relaxing) (30%)

For comparison, the characteristics of preselected music were as follows:

- Genres: three pieces of classical music and one ambiental piece

- Tempo: slow – medium tempo, 50 – 90 BPM
- Arousal: ambient (relaxing), classical pieces were on the verge between exciting and relaxing (neutral)

Participants Characteristics

Students with different levels of musical education were included and generally, the music presented an important role in the everyday life of these students (Table 1). All the participants recognized their self-selected music, which was mixed by the researchers. Approximately half of the participants recognized the preselected musical pieces by Bach (40%) and Mozart (50%), while only 5 people (17%) marked ambient musical pieces and Gregorian chants as familiar. The levels of pleasantness from the expectation before the session, until after the session remained the same for self-selected music, while the level of pleasantness increased after listening to preselected music (Figure 1). Nevertheless, the feeling of pleasantness after listening to preselected music remained lower than the feeling of pleasantness after listening to self-selected music (Figure 1).

The Effects of Music Listening on Heart Rate Variability

The results of the selected time and frequency domain parameters of HRV are presented in Figure 2. When comparing HRV during control study protocols to both intervention protocols, a decrease of HRV parameters indicative of vagal activity (RMSSD, pNN50 and HF) was noticed within the period of listening to either self-selected music or music chosen by the researchers. Although this downward trend persisted throughout the whole 20 minutes' intervention period, the differences between resting HRV and reactivity HRV parameters did not reach statistical significance for either the self-selected neither or preselected musical protocol. In addition, a comparison of HRV parameters between the three different research protocols also showed that lower reactivity of HRV during music listening was not statistically significant when compared to HRV parameters from con-

trol protocol, neither there was no statistically significant difference when we compared the two intervention groups with each other. Interestingly, pNN50, RMSSD and HF in the recovery phase, after music listening (last 10 minutes of musical protocols) was significantly increased when compared to HRV parameters during the reactivity period of music listening.

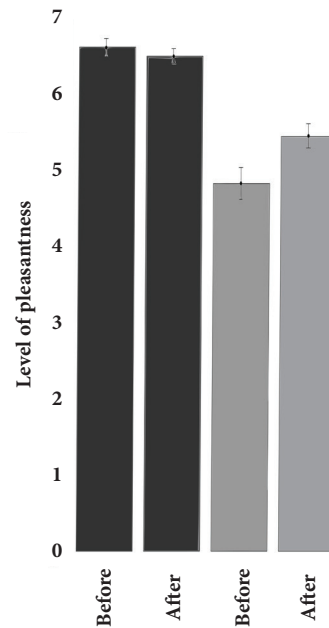


Figure 1. Level of pleasantness evaluated on a 7-point Likert-type scale. For each individual, the level of pleasantness was determined based on the average rating of all four musical pieces for each of the two musical protocols, before and after the session. Levels of pleasantness before and after the session were compared for self-selected (black) and preselected (grey) musical protocols. In addition, levels of pleasantness were compared between both musical protocols only after the session. Statistically significant difference was observed among all comparisons except for before and after listening to self-selected music (Pairwise Wilcoxon Rank Sum Test, $p < .05$).

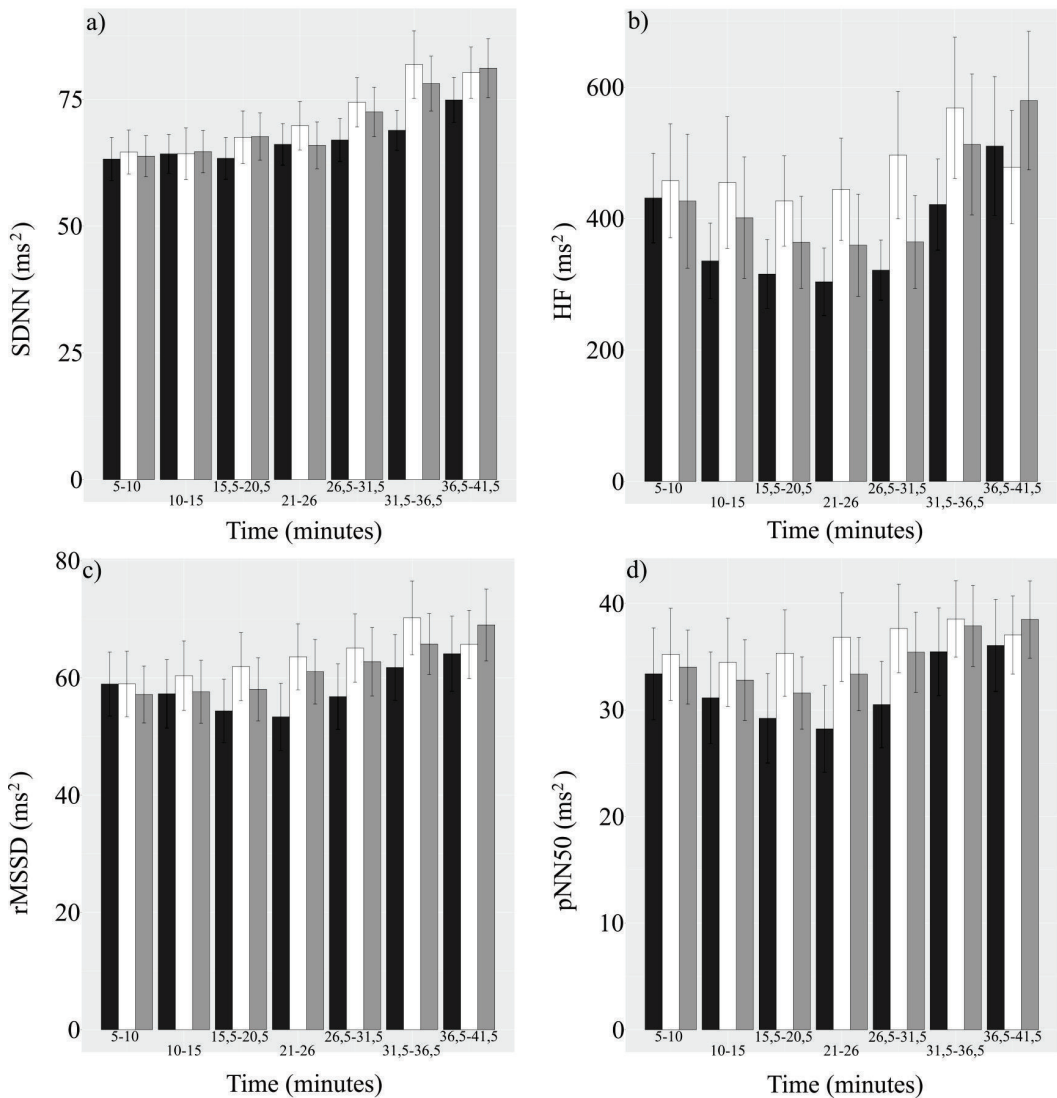


Figure 2. Results from different HRV parameters. Selected parameters were calculated from 5-minute windows. HRV was calculated from a 5-minute window before intervention (the first 5 min of the baseline recording part was excluded), during four 5-minute windows of stimulation with music and after the intervention from two 5-minute windows. Time windows for analysis were the same for resting participants without stimulation. All HRV parameters show a similar trend of vagal tonus activation through the duration of the experiment (two way repeated measures ANOVA, $p < 0.05$). Black columns – self-selected music; Grey columns – preselected music; White columns – control with silence.

Discussion

The characteristics of the self-selected music chosen by the participants varied greatly, compared to researchers' chosen music in terms of tempo, genre and elicited arousal. The tempo of the participants' chosen music was diverse, varying from person to person and between musical pieces on a single playlist. The range of the tempo was between 30 and 140 BPM, a much greater range in comparison to the 60 to 80 BPM, used in the researchers' playlist. The range of the genres used was also much greater, many more genres and subgenres were included than in the researchers' playlist. The elicited arousal of the participants' playlist was in most cases exciting often ambivalent and in some cases relaxing. Compared to the researchers' music, of which elicited arousal was mainly neutral, or rather a little bit on the relaxing side of the spectrum, the participants' music was much more exciting. Participants chose varied music, only one musical piece was present in two playlists. Some listeners chose well-known artists and some chose publicly largely unknown artists. Thus the stimuli of an individual's playlist were in the majority of cases very different from the stimuli of the playlist made by the researchers. Participants, mostly students, found self-selected music significantly more pleasant than the music chosen by the researchers. Nonetheless, the difference was only for one point on a 7-point Likert-type scale and the researchers' music was still perceived as pleasant.

The level of excitement was also reflected in the measurements of HRV parameters representing cardiac vagal tone during 20 minutes of music listening. Listening to music (self-selected or music chosen by the researcher) showed a trend in decreased activity of the parasympathetic (vagal) ANS function when compared to baseline conditions (resting HRV) or when compared to control (silence). Although we found no significant difference in HRV between the three different study protocols, or between baseline conditions and listening to music, we must be careful in drawing conclusions. Notably, the statistical power was low due to the large intra-individual differences in HRV and due to

the small number of participants. The interesting finding of our study is a significant increase in HRV parameters, indicating higher parasympathetic (vagal) tonus in the recovery phase (after music listening), which is similar to the cardiac parasympathetic reactivation following physical exercise (Stanely, Peake, & Buchheit, 2013).

The results of the present study contribute insights into the effects of music listening on the autonomic modulation of cardiac function as indicated by HRV analysis. Well-designed experimental studies comparing the effects of one's own music with the effects of pre-selected classic music genres on the modulation of the ANS are sparse. Therefore, the critical discussion based on the results of other studies is limited (Lynar, Cvejic, Schubert, & Vollmer-Conna, 2017).

Conclusions

The music chosen by the participants varied greatly, compared to music chosen by the researchers in terms of tempo, genre and elicited arousal. Participants evaluated both musical protocols (self-selected music and music chosen by the researchers) as enjoyable. The pleasantness of self-selected music on a 7-point Likert-type scale was rated significantly higher. Listening to music showed a trend in decreasing activity of the parasympathetic function when compared to baseline conditions or when compared to control. However, the trend was not significant. This is probably due to the great intra-individual differences and a bigger sample of participants is needed. Notably, HRV parameters, indicating higher parasympathetic (vagal) tonus in the recovery phase after music listening, increased significantly when compared to the reactivity phase during music listening. Music listening has future perspectives as a simple non-pharmacological method to modulate the listener's ANS function in a clinical setting.

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Music in
Everyday Life

The Function of Music Videos in Everyday Listening Experiences

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Abstract

Streaming music videos (MVs) on social media platforms such as YouTube continues to be a popular method of music listening (see International Federation of the Phonographic Industry, 2018). Empirical research has shown that pairing music with visual stimuli has a significant influence on how the music is perceived and remembered in future listening episodes (Boltz, Ebendorf, & Field, 2009). This suggests MVs experiences may influence subsequent listening episodes, even when the video is no longer present. The aim of the study is to investigate MV watching experiences, particularly addressing the reasons for choosing this method of listening, the cognitive and emotional processes that occur during the experience, and the potential carry-over effects in subsequent listening episodes. Qualitative questionnaire data were collected and personality traits and the use of music for emotional health were measured using the TIPI and HUMS scales. Qualitative analysis was directed at identifying significant themes and causal relationships in the qualitative data. This analysis revealed that participants often experience changes in how they perceive the music's meaning after watching MVs and that future listening episodes would trigger visual mental imagery from the MV. The quantitative analysis revealed that participants with low scores in the trait emotional stability were more likely to experience negative long-term changes in how they perceived the music in subsequent listening episodes. Furthermore, participants with high scores in an unhealthy listening style were more likely to experience long-term effects from the MVs in general. The study identified several characteristics of MV listening experiences, providing new knowledge about this modern listening context. The results elaborate on our understanding of the personal meanings and affective impacts of everyday music listening.

Introduction

The way we listen to music is changing. Smartphones and other portable devices have allowed us to bring music with us virtually any-

where, and streaming services have replaced vinyl records and CDs due to their accessibility and massive music libraries. According to the Music Consumer Insight Report (see International Federation of the Phonographic Industry, 2018) YouTube is currently the most popular method of streaming music online. This suggests that individuals are more likely to consume music as multimedia such as music videos (MVs) as opposed to audio-only formats. Research has shown that music has an important role in young people's psychological and social development (Laiho, 2004; Miranda, 2013). The current study analyses the reasons, emotional outcomes and carry-over effects of this method of music listening in youth audiences and their relationship to certain traits such as personality and use of music for emotional help in order to establish a theoretical framework for understanding these experiences.

MVs differentiate themselves from other forms of music listening due to the fact they are multimedia. Empirical studies which examine the multi-modal component of music listening do exist, however, this previous research has been limited to specific elements such as performance gesture (Davidson, 1993; Vines, Krumhansl, Wanderley, Dalca, & Levitin, 2011) or as they pertain to film music (Boltz, 2004; Cohen, 2001, 2013; Marshall & Cohen, 1988). From a psychological perspective, MVs have mostly been studied in respect to how they influence behaviour in youth (Sun & Lull, 1986) and frequently focus on specific demographics (e.g., Bryant, 2008). Much has changed about MVs since they first appeared on MTV over thirty years ago, for example: they have helped shift the music industry towards a number of online streams as opposed to record sales, having evolved from a means to promote singles to a source of revenue for record companies (Ed-

mond, 2014). Furthermore, their availability on YouTube has allowed audiences to control *which* MVs they watch, wherever and whenever they want. The element of control has been linked to positive outcomes such as contentment and motivation, especially on platforms that allow for personal music collections and curation (Krause, North, & Hewitt, 2015).

Music listening can be used as a tool for regulating affect by maintaining positive mood states or changing negative ones. The GTSM model proposed by van Goethem and Sloboda (2011) highlights how music listening activities succeed in achieving regulation goals by using music listening as a tactic to engage in affect regulating strategies such as mental work or solace, which enable mechanisms such as evoking memories and mental imagery. Another important component to music listening outcomes are individual differences such as gender, age, and personality (Saarikallio, Nieminen, & Brattico, 2013; Vuoskoski & Eerola, 2011), listening style (Chamorro-Premuzic & Furnham, 2007), and use of music for achieving emotion regulation goals (Chin & Rickard, 2014; Saarikallio, Gold, & McFerran, 2015).

MVs are a unique method of listening that can further our current understanding of everyday music use for affect regulation. These listening contexts have been relatively under-explored, despite their popularity and modern role in shaping the music industry. The visual component of MV listening may be an integral source of information for young viewers, who use them as a method of social learning (Hansen & Hansen, 2000), as well for exploring their “private self” (Larson, 1995). This multimodal listening experience may have a significant impact on how the music is perceived, both during the watching episode and in subsequent audio-only listens. As a result, MVs have the potential to influence the way the listener uses the music for affect regulation purposes in the future.

The Current Study

The study aims to create a framework for analyzing MV listening experiences and their relationship to music listening for emotional

health purposes. The study uses questionnaire data and scale measures (TIPI and HUMS) to achieve this. The study uses data from a larger qualitative analysis which aims to create a theoretical model for understanding the process of MV watching over four temporal stages, referred to as: *Intention*, *Attention*, *Reaction* and *Retention* (IARR) (Wilson, Thompson, & Saarikallio, in review). In this framework, *Intention* refers to the reasons an individual chose to watch the MV and what type of goals does aim to fulfil. *Attention* and *Reaction* make up the experience itself; *Attention* themes provide insight into which components of the audio and visual modalities were the object of focus and whether the MV distract them from enjoying the music, and *Reaction* themes provide insight concerning how and why MVs elicit an emotional reaction. The final category, *Retention*, describes the ways in which subsequent listening episodes are affected by the MV’s visual information and the duration of these effects.

Select subcategories from the IARR model were chosen for the current study’s convergent analysis on the grounds they provide reliable insight into the ways in which MVs complement or hinder the use of music to promote emotional health and well-being. These subcategories describe participants’ listening goals, the emotional outcomes they experience, and the

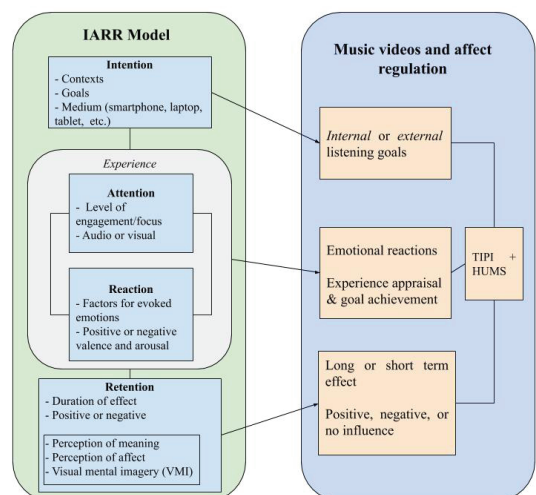


Figure 1. The IARR model (Wilson et al., in review) and the outline of the current study.

potential carry-over effects on future listening episodes. To establish a preliminary framework, these subcategories were transformed into nominal data; this allows for the triangulation of both qualitative and quantitative data sets in order to establish relationships between them. The IARR model and the current study's framework are visualized in Figure 1.

Method

Participants

Data were collected from 34 ($n = 34$) participants between the ages of 15 and 27 ($M = 22.4$). Participants were recruited via social media (Twitter and Facebook). In order to provide an incentive for their participation, all participants who provided a valid email address were entered into a raffle for an Amazon gift card. Participants were encouraged to invite friends to participate. For every friend that participated the original subject had an extra ballot entered for the raffle.

Design and Procedure

The study was accessible online via Qualtrics and took approximately 20–30 minutes to complete. Participants were first asked to complete the HUMS and TIPI measures before they completed the open-ended questionnaire component. Participants were asked to watch a MV they had already seen in order to limit recall bias and to include the song title and artist name or the MVs YouTube link. They were also informed that they may also refer to other MVs in their answers as well. In addition to the selected scale measures, four additional Likert-scale questions were added. Two of these questions were implemented in order to measure how much attention the subject attended to the MV, and whether they found themselves focused on the music or the visual component. The other two Likert questions pertained to how much the MV affected their mood and in what direction (positive or negative). The open-ended questionnaire component was designed in order to allow for detailed responses. Participants were encouraged to provide personal opinions and other details at the end of the study.

Qualitative Data and Analysis

The qualitative analysis was directed at uncovering relationships between patterns of experience and emotional health and well-being. An abductive method was chosen for qualitative analysis; this approach encourages the researcher to revisit the phenomenon in question after exploring and reframing the data from the perspective of existing theoretical frameworks (Timmermans & Tavory, 2012). This was deemed an appropriate method for analysis since individual concepts of MV watching can be understood in light of existing theories on the importance of music during youth and its role in psychological development, the use of music for affect regulation, media use, and gratification, and the cognitive encoding of audiovisual material.

Quantitative Data and Triangulation

The quantitative analysis used two-scale measures: the first measured personality (TIPI; Gosling, Rentfrow, & Swann, 2003) and participants' use of music for emotional health and well-being (HUMS; Saarikallio et al., 2015). Independent sample *t*-tests are conducted on the transformed nominal data from the qualitative analysis and individual variables of interest: personality (TIPI), specifically emotional stability, and healthy or unhealthy use of music for emotion regulation purposes (HUMS).

Results

Qualitative Findings

Reasons for engagement. Two main categories were established in the data: *internal* and *external* goals. *Internal* goals are motivated by the individual's psychological needs and are further subcategorized into *emotional* and *reflective* reasons. Emotional reasons include reports of the subject watching in order to achieve some affect related goal, such as relieving boredom or to change their negative emotional state into a positive one. Reflective reasons consist of watching the MV in order to better understand the meaning or interpretation of the music. In-

dividuals who watched the MV in order to learn how to play the music or to learn dance choreography were also included in this subcategory. *External* goals are influenced by social factors. These social factors include watching MVs that were shared with them by friends, or less personal social influences such as watching MVs that was hyped in the media or recommended to them by YouTube. *External* goals also include using MVs in order to relate to their favorite

Table 1. Categories for intentions and goals of MV watching, descriptions and frequencies.

Intentions and goals		
Category & Frequency	Themes	Example codes
Internal goals 23 cases 67.6%	Emotional: To change or maintain the emotional state	When I am relaxing at night or having an anxiety attack. (P34) During my down-time when I'm procrastinating ... (P36)
	Reflective: To create new associations with the music. To learn how to perform the music or MV choreography.	I love seeing the music videos to songs I love to see how the lyrics combine into visual art. (P24) ... or when I am researching/ learning a song (P36)
External goals 24 cases 70.5%	MV received media hype or is shared by friends For parasocial engagement	Normally I'd only watch the video [if] someone recommended it or if I heard someone mention something special about it. (P10) I think it helps connect to the artist more and to understand what the song means to them. (P12)

media characters, a phenomenon Kristler, Rodgers, Power, Austin, and Hill (2010) referred to as "parasocial interactions". This form of social bonding occurs when individuals develop a perceived relationship with their favorite media characters, including musicians. Overall, goals motivated by *external* goals were reported in 24 cases (70.5%). *Internal* goals were reported in 23 cases (67.6%). Descriptions and frequencies are also reported in Table 1. Since some participants provided more data than others, it was possible for some individuals to provide codes in both categories.

Experience outcomes. Many participants asserted that whether their experience had any influence on their affective state was contingent on at least one of three key factors: the music, the video, and their personal interpretation of the music. These contingent factors are found in Table 2.

Table 2. Contingent factors for emotions evoked by MVs.

Factors	Contingencies
Musical	Genre, emotional quality, artist, familiarity
Visual	Portrayal of emotion, presence of storyline or performance gestures, quality of the cinematography
Personal	Appraisal of the music (prior to watching MV), current affective state, whether the MVs reflects their personal interpretation of the music

Participants were categorized as having experienced *strong affect* if they disclosed intense emotional reactions in response to the MV. Individuals who did not experience any significant emotional outcomes or changes in mood were categorized as *unimpacted*. These two categories are mutually exclusive: participants could not provide evidence of *strong affect* and also be *unimpacted*. However, some participants are not categorized under either due to lack of data or the number of contingencies they report having an effect on their reaction. These categories and their frequencies are described in Table 3.

Table 3. Experience reaction categories, descriptions and frequencies.

Category & Frequency	Themes	Example codes
Strong affect 16 cases 47%	Experiences strong emotional outcomes during MV episode	I find it makes an already powerful moment in the song even more intense (P16)
	Reports that the video makes the emotional quality more salient.	... in general, I feel happier and more upbeat after I watch music videos (P19).
Unimpacted 5 cases 14.7%	No salient emotional outcomes reported.	[My emotional outcomes are] usually not significant. (P22)
	Reports that the MV does not elicit the same emotions as audio-only.	Videos don't tend to alter my mood. The music is an important part for me. (P12)

Duration of effects. Participants asserted that MVs had the potential to change the way they perceived or understood the meaning of the music in the future; however, these were not always perceived as positive changes. Participants who asserted that the MV had a negative effect on future listening episodes were distinguished from participants who experienced more positive or neutral outcomes in subsequent listens. Furthermore, there were eight participants (24% of cases) who asserted MVs had no significant impact on how they perceived the music in the future. As a result, three categories were created: long term positive, long term negative and unaffected. These categories are used in the triangulation component in order to examine relationships between the trait variables of interest and the duration and valence of MV outcomes. The criteria for these categories are outlined in Table 4.

Three particular subsequent outcomes were distinguished in the data. The first two, described as a change in *perception of affect*,

Table 4. Duration and valence of MV effects.

Duration	Valence & Frequency	Example codes
Long term	Positive 58%	<i>The [MV] is really powerful and had a long-lasting impression on me. Now, every time I hear the song, I am reminded of the video and the message [the artist] was trying to convey. (P19)</i>
	Negative 18%	<i>I've been basically trying to erase the video from my brain so I can love the song the way I did before... (P25)</i>
Unaffected	Neutral 24%	<i>Depends on how in depth the story is but mostly the song means to me despite what the video says. (P35)</i>

change of *meaning and interpretation*, were used to establish whether the individual experienced salient long-term positive or negative salient outcomes. *Visual mental imagery* (VMI) was the most frequently reported subsequent outcome; more than three-quarters of the participants reported experiencing this effect, even those who said the MV had no long-term effects on their future listening episodes. All three categories are described in Table 5.

Quantitative Findings and Triangulation

Independent samples *t*-tests, Mann Whitney *u*-tests and one-way ANOVA were conducted in order to establish potential relationships between the trait variables of interest and categorical data. No statistical analyses were run on the contingent factors nor were any run on the descriptive categories for subsequent outcomes. These categories provide key insights into the type of long-term effects individuals experience, however, for the purpose of this analysis, the subsequent outcome categories were used to establish which participants experienced any long-term effects and whether that change was

Table 5. Descriptive categories for subsequent outcomes, descriptions, and frequencies.

Subsequent Outcomes		
Category	Themes	Example codes
Perception of affect	The emotional quality of the music is perceived differently in subsequent listens. This outcome often effects the subject's subsequent reasons for listening.	<i>It made me feel the song has heavier and more intense than before.</i> (P25)
Meaning and interpretation	Visual information from MV created new associations that changed the way the meaning of the music is understood	<i>Now, every time I hear the song, I am reminded of the video and the message that [the artist] was trying to portray in the video.</i> (P19)
Visual mental imagery (VMI)	The music triggers memories of visual scenes from the MV. This memory recall manifests as general thematic imagery or specific scenes triggered by specific moments in the music.	<i>[Now] every time I listen to the song and it hits a certain point that scene and the movement always replays in my head.</i> (P4)

perceived as positive or negative. For example, if a subject experienced a change in interpretation of the music's meaning in subsequent listening episodes, this was considered a long-term change. If the subject stated they disliked being reminded of the MV in their subsequent listening episodes, it was considered a long-term *negative* change. This was more suitable for the study's objective: to establish potential relationships between the duration and valence of MV

effects and individual traits related to the emotional use of music.

Independent samples t-tests reported a significant difference in unhealthy listening scores, where individuals who reported *externally* motivated goals for MV engagement had lower scores for unhealthy use ($M = 12.9$, $SD = 4.13$) compared to those who did not report these incentives for watching ($M = 19.5$, $SD = 3.27$): $t(32) = -4.48$, $p < .001$. Furthermore, individuals watching to achieve these goals had higher scores in emotional stability ($M = 4.88$, $SD = 1.35$) compared to those who did not ($M = 3.4$, $SD = 1.45$): $t(32) = 2.85$, $p = .008$. No significant relationships were observed for *internal* goals for watching and scale measures. All t-test data for *internal* and *external* goals are found in Table 6.

Table 6. T-test and U-test data for Internal and External goals.

	Internal		External	
	T	P	t	p
Healthy	94.0 [^]	.235	0.09	.926
Unhealthy	-0.27	.79	-4.48	<.001**
Emotional Stability	111.5 [^]	.59	2.85	.008**

* $p < .05$, ** $p < .017$ (Bonferroni correction),
[^]Mann-Whitney (all others t-test)

Experience outcomes were also significantly related to unhealthy listening scores, depending on if the subject experienced *strong affect* in response to the MV or were *unimpacted*. According to the independent sample t-test data, higher scores in unhealthy listening style were significantly related to *strong affect* ($M = 17.2$, $SD = 4.26$) compared to individuals who did not experience significant emotional responses ($M = 12.8$, $SD = 4.58$): $t(32) = 2.89$, $p = .007$. Unhealthy scores were also significantly lower for *unimpacted* individuals ($Md = 9.0$) compared to those who were uncertain or experienced strong emotions in response to the MV ($Md = 15.86$): $U = 12.5$, $p = .004$. Experience outcomes are reported in Table 7.

Table 7. T-test and U-test data for Experience Outcomes.

	Strong Affect		Unimpacted	
	t	p	t	p
Healthy	0.092	.93	-0.80	.926
Unhealthy	2.89	.007**	12.5 [^]	.004**
Emotional Stability	-1.52	.14	47.5 [^]	.23

* $p < .05$, ** $p < .017$ (Bonferroni correction),

[^]Mann-Whitney (all others t-test)

An independent samples *t*-test revealed that long-term outcomes, regardless of whether they were perceived as positive or negative, were significantly related to higher unhealthy use scores ($M = 16.0, SD = 4.8$) compared to individuals who did not experience long-term outcomes ($M = 12.2, SD = 4.27$): $t(31) = 2.09, p = .044$. T-tests also revealed that individuals who experienced long term outcomes were significantly related to lower scores in the trait emotional stability ($M = 4.04, SD = 1.43$) compared to those who did not, ($M = 5.56, SD = 1.31$): $t(31) = -2.77, p = .009$. A one-way ANOVA revealed a significant effect of long-term outcome on emotional stability scores, $F(2,30) = 5.56, p = .009$. Tukey post-hoc comparisons revealed that those with no long-term outcomes (*unaffected*) ($M = 5.81, SD = 1.36$) had significantly higher emotional stability scores than both positive ($M = 4.13, SD = 1.36$) and negative ($M = 3.67, SD = 1.13$) long-term outcome groups. No significant effects were found for healthy or unhealthy scores.

Conclusion

The aim of the study was to establish a preliminary framework for understanding young people’s experiences with MV media and its relationship to the use of music for emotional health. The study uses categorical outcomes outlined in the IARR framework (Wilson et al., in review) which provides new insight concerning the types of goals this method of music listening may accomplish, the emotional reactions they elicit, and the carry-over effects they impose on subsequent listening episodes.

The findings from this study suggest that MV watching is more than a form of music listening;

it is also a form of social media engagement. For some participants, MV watching was instigated not by an interest in the music or the artist or personal psychological goals, but external factors such as social media sharing, general media hype or feuds between artists. This finding also reflects an important paradigm shift in modern music listening, where an artist’s success can be measured by a number of views their songs have on YouTube rather than albums sold. As a result, the line separating music listening from social media activities is becoming blurred. These *external* goals were significantly related to lower scores in unhealthy listening styles and higher scores in the trait of emotional stability, whereas no such relationships were observed for *internal* goals. The relationship between these measures and *external* goals may be indicative of the individual using MVs to feel connected to others, such as their peers. Participants who used MVs to achieve such goals frequently reported sharing their favorite MVs with their friends, sometimes watching them together. Previous research has suggested that music listening for the purpose of feeling socially connected to one’s peers may have negative impacts on well-being when music replaces real friends (Chin & Rickard, 2014; Laiho, 2004) or when the individual suppresses their thoughts and feelings in order to feel connected with their peers (Chin & Rickard, 2014). Individuals who disclosed *external* reasons for watching may not necessarily be watching MVs for songs by favorite artists, instead of watching in order to be in on the “hype”. This reflects a different kind of social connectedness through music that differentiates itself from previously identified social functions such as identity formation and peer-group identification (Laiho, 2004; Larson, 1995; North & Hargreaves, 1999).

The findings from the experience and subsequent outcome levels can provide a useful foundation for future research examining the links between emotional health and MV music listening during youth. The study finds evidence that stronger emotional outcomes (*strong affect*) in response to MVs were significantly related to higher scores in unhealthy listening styles, whereas individuals who experienced no

significant emotional outcomes (*unimpacted*) had significantly lower scores in unhealthy listening styles. Future research can benefit from using scales which specifically measure emotion regulation tendencies (i.e. Emotion Regulation Questionnaire; Gross & John, 2003) and use of music for mood regulation (i.e. Music for Mood Regulation Scale; Saarikallio & Erkkilä, 2007) in order to establish the relationship between outcomes from MV listening experiences and both musical and non-musical affect regulation strategies.

Future research should investigate whether traits such as empathy are a factor mediating these experiences, particularly when they are used for parasocial engagement. Whether these perceived relationships have a positive or negative influence on the use of music for emotional well-being is especially relevant during MV listening experiences based on the finding that participants frequently engage with this media in order to connect to their favourite artists.

The study identifies ways in which MVs modify future listening experiences by directly influencing mechanisms for music-evoked emotion and affect regulation. Visual mental imagery (VMI) has been identified as an underlying mechanism for music-evoked emotions (Juslin, 2013; Juslin, Harmat, & Eerola, 2014; Juslin & Västfjäll, 2008), however, there has been no research to date which analyses how visual representations of the music (such as MVs) influence this mechanism. VMI was the most frequently reported subsequent outcome, where images from the video were triggered automatically and often unintentionally. There also appears to be a link between this mechanism and scenes depicting human movement, such as performance gestures and choreographed movement. This finding may be particularly relevant for research on embodied cognition in music or neurology studies investigating mirror neuron systems (Overy & Molnar-Szakacs, 2009). Furthermore, the study highlights the ways in which multi-modal listening experiences can change the way music is used to regulate affect, during the experience as well as in the future. For example, some participants suggested the MV allowed them to be more absorbed in the music than if

they were only listening to the audio since the visual component made the listening experience less passive and more engaging.

The study successfully highlights the cognitive and emotional processes involved during MV listening episodes, however, there are limitations to address. The online questionnaire component was beneficial in that participants were able to complete the study in an environment where they would usually engage with MVs, however, this also meant that there was no interviewer who could follow up or ask for more detail in the event a subject provided interesting details about their experience. Some participants provided more details than others, in some cases even providing details of more than one MV experience. For example, if a subject provided *internal* and *external* goals for MV watching and several potential subsequent outcomes, there was no way of establishing which outcomes were related to which initial reasons or goals the experience was meant to accomplish.

Overall, the current study is an important contribution to our knowledge of modern music listening, which today often occurs in the context of MV watching. Music psychological knowledge on music listening needs to be kept updated, taking these new contexts into account and we believe this study to be an important pioneering step in this endeavor.

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The Emotional Response of Different Generations to Mass (Partisan) Songs

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Abstract

One of the benefits of music is the ability to present events, personalities, social conditions and emotions (Gabrielsson & Lindstrom, 2001). Considering the coherence of this statement with the ideas of the art of socialist realism, the question is how different generations emotionally response and value mass songs, as a paradigm of the art of socialist realism (Hofman, 2005). The goals of this research are to a) examine the emotional response to mass (Partisan) songs; b) determine aesthetic and value attitudes about mass songs, and to investigate differences between the two groups of participants, as to these two measures; c) determine the correlation between the context and level of listening of mass songs with the emotional response and aesthetic-values attitudes. The whole sample ($N = 234$) was divided into two subgroups of participants: “older” group ($N = 83$) consisted of those who were born in a period from 1946 (after Second World War) till 1980 (Tito’s death), and “younger” group ($N = 151$) those born between 1981 (after Tito’s death) and 2001 (full-aged citizens now). As research instruments, two questionnaires were used for two age groups (filled in *online*), with combined-type questions and three audio examples/segments of mass songs with various contents: *Uz Maršala Tita* (glorifies the leader), *Oj Kozaro* (glorifies collective) and *Steg Partije* (glorifies unity of/with a party). On the list of 12 emotions (Hunter and Schellenberg, 2010) participants were expressing their emotional reaction (1–5 scale) after listening to each song: anger, depression, boredom, peace, relaxation, joy, happy, fear, sorrow, excitement, disquiet, and pleasure.

Introduction

As a result of complex relationships between cultural, sociostructural, cognitive and neurological forces (Turner & Stets, 2005: 9), emotions are natural phenomena, caused by biological mechanisms that do not exist sepa-

rately from thought (Ratner, 2000). The acquired knowledge influences the formation of an attitude about a particular phenomenon. Thus, an individual’s autonomous behavior is the result of social development, which takes the form of internalized, collectively established norms, while maintaining the external regulatory function of those norms and values (Simić & Todorović, 2009).

One of the strengths of music is the ability to represent events, personalities, social conditions and emotions (Gabrielsson & Lindstrom, 2001). Considering the coherence of this statement with the ideas of the art of socialist realism, the question is how different generations emotionally response and value mass songs, as a paradigm of the socialist realism’s art (Hofman, 2005). The goals of this research are to a) examine the emotional response to mass (partisan) songs; b) determine aesthetic and value attitudes about mass songs, and to investigate differences between the two groups of participants, as to these two measures; c) determine the correlation between the context and level of listening to mass songs with the emotional response and aesthetic-values attitudes.

The music of the National Liberation War in Yugoslavia and socialist realism is a phenomenon whose development is conditioned by a specific socio-political situation. The artistic-and-cultural current of socialist realism (1945–1951) in Yugoslavia has produced numerous works that are classified in the domain of mass songs, a genre that represents a musical paradigm of this style. The themes of songs were the revolution and the construction of socialism, and the protagonists were workers, fighters, pioneers, etc. Lyrics were about the revolution,

winning the war and building a happier future. The melody was usually sung in the rhythm of a march or with a character of a hymn and could be easily remembered.

Accordingly, it is necessary to examine an attitude and emotional response to mass songs from the perspective of those who did (not) live in Yugoslavia. The authors list 7 psychological mechanisms that can arouse an emotional reaction while listening to music, such as brain stem reflexes (general arousal, discomfort *versus* pleasantness, high induction rate), enjoyment of rhythm, evaluative conditioning, contagion (basic emotions, high-speed induction), visual imagination (all possible emotions, low induction, high willpower), episodic memory (all possible emotions, especially nostalgia, low speed, etc.) and music anticipation (surprise, awe, excitement, disappointment, hope, anxiety) (Juslin, 2011; Juslin, Liljeström, Västfjäll, & Lundquist, 2010).

Nevertheless, some of the earliest studies of emotional expressiveness in music were conducted by Hevner (1937), who used and listed a large number of expressions for emotions, dividing them into 8 groups, that is a check-list of adjectives, with one *representative* in each group. The author concluded the variables that most influenced the respondent's judgment were in fact related to the register's range, harmony and rhythm, while the melodic movement had the least effect. Hevner (1937) also emphasized the importance of using a piece with a similar emotional expression. For example, although happiness is usually associated with major tonality, the composition may sound *happy* due to other factors, such as tempo or rhythm (Juslin & Sloboda, 2010).

Kivy (1980) concluded that musical pieces that sound happy or sad do not cause happiness or sadness in the listeners. The author argues that emotions require a cognitive evaluation of the goal and that there is no goal in the music other than the music itself. "Listeners call music happy or sad because music expresses happiness or sadness, not because music makes them happy or sad" (Hunter & Schellenberg, 2010: 131–132). In addition, Hunter and Schellenberg

(2010) introduced a *circumplex model* with two dimensions of emotional experiences. They are a level of tension (*arousal*) and *valence*, referring to the experience of pleasantness and discomfort.

Method

The sample of this empirical research consists of 234 respondents represented by two groups: older respondents (83) are born in the period from 1946 (after Second World War) until 1980 (Tito's death), and younger people (151) born between 1981 (after Tito's death) and 2001 (adult citizens). These two groups of respondents were selected because younger respondents did not consciously participate in the life and daily life of a state formed after World War II and had no specific contact with the cultural heritage of that ideological current, while on the other side, older respondents are born and they have been raised under the auspices of Yugoslavia. Research instruments are two combined-type questionnaires and three audio examples (segments of mass songs with various contents: *Uz Maršala Tita* – glorify of the leader, *Oj Kozaro* – collective, and *Steg Partije* – unity). A list of emotions (Hunter & Schellenberg, 2010) is measured with a scale from 1 to 5 and it implies anger, depression, boredom, peace, relaxation, joy, happiness, fear, sorrow, excitement, disquiet, and pleasure.

Participants were answering questions online. Questionnaire No. 1 (for younger participants) consists of three parts. The first part covers general variables such as gender, year of birth, place of birth, and place of residence (until the end of high school), and whether the respondent is a student or (un)employed, whether he is engaged in music (if yes, the question is which section the respondent completed at the music academy if he studied) and whether he has children. Then, the second part of the questionnaire consisted of one question for both groups of respondents: "The following are three sound examples of mass songs. Mark the extent to which you feel that a particular song is related to each emotion listed". The statements are as follows: "1. It does not fit at all; 2. It generally

does not fit; 3. I have no opinion / neutral; 4. Mostly fit; 5. Fully responds”, followed by a list of relevant emotions: anger, depression, boredom, peace, relaxation, joy, happiness, fear, sorrow, excitement, disquiet, and pleasure. The audio examples are segments (about 40 seconds) of three earlier mentioned mass songs. The selection was made on the base of the examples given by Ivan Hofman (2005) as the most representative, but also on the availability of higher-quality audio recordings. The third part of the questionnaire is composed of 15 questions (1–5 Likert scale) in order to determine the extent to which the respondents are familiar with the mass songs, and what is their position on it.

Questionnaire No. 2 (for older respondents) was composed of three parts. The first part refers to general variables and is identical to questionnaire 1 (with additional questions about the place of current residence). The second part is identical to the questionnaire for the younger group, while in the third part they answered five questions about whether they had ever listened to partisan songs, four questions whether they had passed on knowledge to their children (if any) and eight questions about personal attitude on mass songs (both of the forms you can find here: <https://drive.google.com/-open?id=1RXntJE1LyFVMc1FpMFpM4DSdxPqoj>).

Results

The birthplaces of 151 respondents from the younger group are as follows: 51.7% of participants are from Vojvodina and Belgrade, 31.8% from Šumadija and other parts of Serbia and Kosovo and Metohija, 14.6% from Bosnia and Herzegovina, Croatia and Montenegro, and 2.0% from abroad. Their emotional response to the first sound example (compared to the responses for all three examples), is related to an excitement ($M = 3.94, SD = 1.25$) and a pleasure ($M = 3.62, SD = 1.32$) (Table 1). In most cases, respondents described the second example as a reflection of peace ($M = 2.50, SD = 1.26$), relaxation ($M = 3.00, SD = 1.41$), joy ($M = 3.77, SD = 1.33$) and happiness ($M = 3.70, SD = 1.30$). No emotion was significantly distinguished from the previous two examples.

Table 1. Description of responses for each of sound examples (younger group).

Emotions	Audio samples					
	1		2		3	
	M	SD	M	SD	M	SD
Anger	1.95	1.24	1.35	1.0	1.85	1.17
Depression	1.50	1.00	1.40	1.0	1.58	1.10
Boredom	1.50	1.00	1.77	1.30	1.62	1.14
Peace	2.15	1.20	2.50	1.26	2.10	1.11
Relaxation	2.00	1.11	3.00	1.41	2.12	1.13
Joy	3.23	1.28	3.77	1.33	3.00	1.32
Happiness	3.30	1.25	3.70	1.30	2.86	1.30
Fear	2.04	1.20	1.55	1.0	2.16	1.21
Sorrow	2.07	1.28	1.61	1.10	1.93	1.15
Excitement	3.94	1.25	3.33	1.34	3.62	1.31
Disquiet	2.50	1.34	1.81	1.20	2.54	1.36
Pleasure	3.62	1.32	3.44	1.40	3.21	1.45

The older group marked anger ($M = 1.70, SD = 1.15$) and excitement ($M = 3.76, SD = 1.28$) for the first example, relaxation ($M = 2.81, SD = 1.31$), joy ($M = 3.70, SD = 1.21$) and happiness ($M = 3.50, SD = 1.24$) for the second one, and disquiet ($M = 2.40, SD = 1.14$) for the third example (Table 2).

No significant difference was observed between the response of the older and younger groups for the first and third audio examples, while the second example was rated as boring by the younger group ($t(232) = 2.45, p = .015$). Thus, it can be said that there is no significant difference between the emotional responses of both groups for all three sound examples.

The answers of the younger group in the third part of the questionnaire indicate that respondents rarely listened to mass songs (57.6%); most of them never listened to mass songs in college (65.6%); parents of most of them did not listen (72.2%) and did not sing these songs at home (74.8%); their parents rarely or never talked about mass songs (44.4%); they did not

Table 2. Description of responses for each of sound examples (older group).

Emotions	Audio samples					
	1		2		3	
	M	SD	M	SD	M	SD
Anger	1.70	1.15	1.28	0.57	1.67	1.04
Depression	1.35	0.67	1.33	0.68	1.35	0.70
Boredom	1.30	0.70	1.40	0.76	1.51	0.90
Peace	2.19	1.22	2.22	1.31	2.27	1.23
Relaxation	2.27	1.25	2.81	1.31	2.24	1.24
Joy	3.18	1.36	3.70	1.21	3.17	1.20
Happiness	3.22	1.31	3.50	1.24	3.14	1.24
Fear	1.78	1.15	1.60	1.01	1.86	1.14
Sorrow	1.81	1.10	1.82	1.17	1.86	1.11
Excitement	3.76	1.28	3.36	1.28	3.61	1.14
Disquiet	2.23	1.36	2.11	1.31	2.40	1.14
Pleasure	3.46	1.31	3.52	1.30	3.53	1.24

listen to these songs at home (76.8%), or heard about them from their grandparents (51.7%). In the older group, the answers were slightly different: these respondents very often were listening to partisan songs (54.2%), both at school and in college (49.4%); most of them do not listen to mass songs (51.8%), nor do they ever listen to at home (63.9%); they were very rarely listened to when they were young (57.8%). Those with children rarely spoke to them about mass songs (38.6%) and did not play them (50.6%) or sung (48.2%), nor did children question them about this music (43.4%).

The aesthetic-value attitude of the younger group shows that, in most cases, they did not discover the mass songs themselves (45%), that they had the opportunity to hear them before (53%), implying that they did not listen to mass songs for the first time in this research (77.5%).

They mostly agree that these songs reflect the fighting spirit of the people (66.9%) and that the partisan songs accentuate heroism and suffering (69.6%); they like the music of the songs (51.7%) and songs in general (50.1%), so they are not sure if the lyrics rise up the individuals (41.7%). In the older group, answers are different again: this songs remind them of youth (83.1%) and better times (63.9%); they believe songs reflect the fighting spirit of the people (82%), and they accentuate heroism and suffering (78.3%); they consider *strength* to be the word that describes these songs (80.2%); lyrics glorify the collective, not the leader (48.2%), and they like partisan songs (60.2%).

Factor analysis of exposure, transfer of experience and aesthetic values of the older group show us that there were four factors I named: a) Positive attitude and transfer of experience; b) Nostalgia; c) Positive emotional charge; d) Negative attitude/resistance to the leader. The first factor indicates the respondents who listened and listen to the mass songs, and that the partisan songs have listened at their home, the children talked about the songs and asked about them, and finally – that they liked the music of these songs. The second factor (nostalgia) accentuates the listeners of mass songs in general; these songs remind them of youth and better times; they think about these songs as an embodiment of fighting spirit, heroism and strength, and like their melodies. On the other side, the third factor indicates listening to songs in general (at school and in college, in youth and in association with youth), while in the fourth group the respondents answered they don't like songs and connect them with a leader, not a collective.

Correlation analysis with an emotional response to the three audio examples indicates that the second factor (nostalgia) in all three cases is related to happiness, excitement, and satisfaction, while the fourth factor (negative attitude/resistance to the leader) is related to anxiety.

Factor analysis of the younger group of respondents also indicates four groups of factors: a) Positive attitude – family (parents listen, sing and talk about songs; mass songs have listened

in their house); b) Positive personal attitude (participants discovered the songs by themselves and associate them with fighting spirit and strength); c) Neutral attitude regarding listening (respondents listened to songs in general at school and college); d) Attitudes about individuals (they consider mass songs glorify individuals, not the collective).

In the correlation analysis with emotional responses, it is noticeable that the second factor (positive personal attitude) is related to relaxation, joy, happiness, excitement, and pleasure in all audio examples. Interestingly, the fourth factor, which relates to attitude about individuals, does not carry a negative connotation (as opposed to the response of the older group of respondents). Namely, for the first sound example, the respondents answered it was not related to anger, depression, and happiness; the second one was related to excitement and pleasure, while the third one was neither related to fear nor boredom. Therefore, one could say it is a neutral attitude that is independent of the influence of the environment and the family.

Conclusion

The aesthetic values of the two groups show that the positive experience of the songs is accompanied by one view: in the mass songs, everything is about heroism and combativeness of the people. Exposure to listening to mass songs in general and in school/college is higher in the group of older respondents. In the older group, a positive attitude was associated with youth and better times and the potential transfer of experiences from primary families (listening to songs in the family) to secondary ones (affecting children). Correlation analysis indicates there is a greater degree of songs-liking in the younger group. In the younger group, a positive attitude and emotional response were related to discovering songs by participants or listening to them under the influence of family.

The results indicate the same emotional response of both groups of respondents for all three sound examples and raise the question: does it exist a sort of transgenerational transfer of experiences within the family? It is notice-

able that, regardless of political connotation and generational difference, there is an emotional charge that songs convey. Thus, it could be said mass songs, regardless of social context and temporal distance from their origin, represent for both groups of respondents the combative-ness, heroism, unity, and greatness of communion.

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Effect of Music on Subjective Experience of Dance Performances

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Abstract

As previous works showed a difference in the subjective experiences of different types of dance, the aim of this paper is to check whether there are differences in the effects of music between different types of dance: classical ballet, hip hop, and contemporary dance. The sample is convenient and consists of 45 students of psychology (male 9, female 36), from the Faculty of Philosophy in Niš. The age range was from 19 to 23 years ($M = 19.27$, $SD = .69$). The participants were shown six dance performances, 2 for each type of dance, for an average duration of 1 minute and 30 seconds. After each performance, respondents answered the question, “How much music influenced your preference for this performance?” on the 7-point Likert scale. Analysis of variance showed that the effect of music on performance preference is different for different types of dance ($F(2) = 20.176$, $p < .000$). Post hoc testing showed this effect is greatest for contemporary dance, where the effect of music on preferences differs statistically significantly from both ballet ($p < .011$) and hip hop ($p < .000$), and both differences are on benefit of contemporary dance. The smallest effect of music is on hip hop, which differs statistically significant from ballet ($p < .002$) and contemporary dance ($p < .000$), but both differences are in favor of these two types of dance. From the results of this paper, we can conclude that the music that follows the performance has a different effect on different types of dance. For further studies, we suggest including several types of dance with the same music, to check if there is an interaction between dance performance and music, or music has an effect on the preference of dance independently.

Introduction

This research aims to examine the importance of music in the subjective experience of dance, and whether there are any differences in the effects of music on the subjective experience of different types of dance.

When it comes to the possibilities of dance as a creative and self-expressive aesthetic ac-

tivity, so far, little has been said directly about the criteria that one can refer to when teaching dance, or when judged as an artistic performance (Redfern, 1983, as cited in Arnold, 1986). Besides, different individuals may have different attitudes toward the work of art, which, in turn, may influence the way the artwork is perceived (Macel, 2008, as cited in Nadal, Munar, Capó, Rosselló, & Cela-Conde, 2008). And dance is, of course, a form of art.

Dance is a basic form of human expression that involves rhythmic and arrhythmic movements of the body, which are often accompanied by music (Bachrach, Fontbonne, Joufflineau, & Ulloa, 2015). It is performed alone or in a group and is practiced in many cultures as a form of emotional expression, social interaction, and physical exercise (Bachrach et al., 2015).

Dance has many aspects, and the rhythm stands out as one. This aspect of dance has also been the subject of a number of researches into this type of art (Brown & Parsons, 2008), in the context of its importance for dance creation. Less explored is the question of how rhythm is perceived by observers and how it affects them (Bachrach et al., 2015). Also, each dance creation or style consists of multiple rhythms and different dimensions and fragments. Sometimes rhythm can be clearly seen in movement patterns or music; it is explicit, and in the latter case this rhythm appears in the structure of the choreography or expressiveness of the dancer (and it may be considered implicit). In contemporary dance, implicit rhythms are of particular interest, as it is often the case that music (if present at all) and movement have no explicit rhythmic structure (Bachrach et al., 2015).

Another important variable in our research, inseparable from dance, is music. Specifically, previous research suggests that our brains have specific abilities to process music (Ayotte, Per-

etz, & Hyde, 2002), which means that we are already physiologically prepared to listen and enjoy music, making it a critical phenomenon worth exploring. Roederer (1984) advocates the idea that music could serve to advance social cohesion, which has been supported by many researchers (Brown, 2000; Freeman, 1995, 2000; Richman, 1987, as cited in Hagen & Bryant, 2003). Evolutionary models explicitly advocate the idea of individuals joining groups because they can reap the benefits of maintaining good health by being members of the group, and in turn, providing good health for the group itself (Axelrod & Dion, 1988, as cited in Roederer, 1984). Such cooperative strategies usually take the form of either a benefit exchange or a symbiosis.

It is important to state that music can reliably convey recognizable emotions to listeners, even those who listen to music from an unknown repertoire of tones (Balkwill & Thompson, 1999). Given that people have rich social interactions at the group level, this is assumed to be an adaptive function of the group signaling the collective emotional state of the group to others. For example, anger expresses the intention to launch an attack. At the individual level, music could be an analogy to group-level signals that are associated with emotions (Hagen & Bryant, 2003).

Regarding previous research on similar topics, Maja Vukadinović (2013) examined the subjective judgments of the audience about freedom of artistic expression in classical ballet, modern ballet and flamenco, through three criteria, freedom of expression of emotions, freedom of use of dance figures and freedom of the usage of space. This research showed that the freedom of expression of emotions in classical ballet was estimated at statistically significantly lower values compared to the other two criteria for evaluating the freedom of artistic expression. This is reflected through the formal characteristics of the ballet, the strict form of the movement, the point, the precisely defined body positions, etc. Then, the freedom of expression of emotions within modern ballet was assessed with statistically significantly lower values compared to the other two criteria. Such a result could be ex-

pected given the basic concepts of modern ballet, which convey (communicate) the message of human existence (Au, 2002; Huxley, 1994; Jowitt, 1994; Press & Warburton, 2007, as cited in Vukadinović, 2013) and the complexity of human nature via its formal features. (Duncan, 1981; Graham, 1991; Huxley, 1994; Jowitt, 1994, as cited in Vukadinovic, 2013) It can be stated that the freedom to use space and the freedom to use dance figures are significant foundations of the essential ideas of modern ballet since it has previously been shown (Camurri, Lagerlof, & Volpe, 2003) that the expression of basic emotions (anger, fear, sadness, and happiness) is easily recognized in modern ballet. Expression freedom was the highest in flamenco dance. The fact that flamenco scores the lowest for freedom of use of space is probably because flamenco excels at dancing in small spaces among friends and other flamenco dancers (Candelori & Díaz, 1998). In the context of this research, this means that the creative process of choreography does not depend solely on the original performance components that relate to the creator, which implies skills relevant to the area in which he or she is engaged, skills related to creativity and motivation to complete the task (Amabile, 1983, as cited in Vukadinović, 2013), but also to a broader cultural context (Glăveanu, 2010), which is reflected through the formal characteristics of the particular dance for which the choreography was created.

As earlier work has shown that there is a difference in the subjective experience of different types of dance, this paper aims to determine if there are differences in the effects of music between different kinds of dance: classical ballet, hip hop, and contemporary dance.

Method

Sample and Procedure

The sample is convenient and consists of 45 subjects (male 9, female 36) from the first year of study of psychology at the Faculty of Philosophy in Niš. The age of the respondents ranged from 19 to 23 years ($M = 19.27$, $SD = .69$). In this sample, five respondents are active in dancing and the other 40 not. All subjects participat-

ed in all six levels of the independent variable, with counterbalancing applied. The preference for a particular dance was not a control variable in this study. All participants volunteered for this research.

The choreographies were exhibited using a video projector in the form of visual and auditory recordings in a predetermined order. Respondents observed the recordings in groups and made assessments immediately after viewing the recording. Participants were asked to focus their attention on the music that accompanies each dance performance. While looking at the dance performance, the task of the respondents was to evaluate the choreography in each part of the research on seven-point scales (from -3 to +3) following three criteria for freedom of artistic expression: the freedom to use space, freedom to use different dance figures and freedom to express emotions.

Stimuli

The stimuli consisted of six choreographies lasting an average of minutes and 30 seconds. For each of the three types of dance, the subjects were shown two choreographies, and all of them were exposed through a video presentation.

Instruments

A seven-point semantic differential scale (from -3 to +3) was used to examine the extent to which extent the music in the background of dance performance influenced the experience of dance performance. Also, respondents were asked to indicate their age, year of study, and whether they had previous experience in dance.

Results

The analysis of variance revealed that the effect of music on liking was different for different types of dance ($F(2) = 20.176, p < .000$). Post hoc testing has shown that this effect is most significant for contemporary dance, where the impact of music on liking differs statistically significantly from ballet ($p = .011$) and hip hop ($p < .000$), and these differences are in both cases in the benefit of contemporary dance. Music has the smallest effect on hip hop, which is also

statistically significantly different from ballet ($p < .002$) and contemporary dance ($p < .000$), but these differences are in both cases in favor of these two types of dance.

We also checked if different aspects of the subjective experiences of the dance performances can predict the effects of music.

Table 1. Regression analysis: Prediction of usage of space in the dance performances by the effects of music.

Predictor	R^2	β	F	p
Effects of music	.021	0.144	5.695	.018

The results presented in Table 1 showed that the use of space in dance performance was a statistically significant predictor of the influence of music on liking dance performance, with a positive correlation. When space is used to a greater extent in dance performance, the effect of music on liking the performance itself is more pronounced. The predictor mentioned here explains 2.1% of the variance of the criterion variable.

Table 2. Regression analysis: Prediction of usage of figures in the dance performances by the effects of music.

Predictor	R^2	β	F	p
Effects of music	.03	0.174	8.393	.004

The variable Using dance figures in dance performance was also shown to be a statistically significant predictor of the influence of music on liking dance performance, with a positive correlation. The more dance figures were used in a dance performance, the more effect music had on liking the performance itself. This predictor explains 3% of the variance of the criterion variable.

Table 3. Regression analysis: Prediction emotion expression in the dance performances by the effects of music.

Predictor	R^2	β	F	p
Effects of music	.118	0.344	35.896	< .001

When it comes to expressing emotions during a dance performance, this variable is a statistically significant predictor of the influence of music on liking dance performance, and there is a positive correlation between predictors and criteria. Specifically, greater emotional expressiveness during the performance of a dance performance is associated with a more considerable influence of the music that accompanies the dance performance to its liking. This predictor explains the highest percentage of variance in the criterion variable compared to the previous two, or 11.8%.

Discussion

Given that music's effect on liking, dance performance has been found to be different for different types of dance, these findings are consistent with previous research indicating that our brains have specific abilities to process music (Ayotte et al., 2002), meaning that we are already physiologically prepared to listen and enjoy music. Both dance and music have such a relationship that can be considered a coalition (Jackendoff & Lerdahl, 2006), so the obtained results are not surprising.

Post hoc analysis found that music in the background of dance performance has the most significant effect on contemporary dance. This type of dance is characterized by unpredictable changes in rhythm, speed, and direction, and it can be assumed that choreographers choose music that will emphasize the characteristics of this type of dance. Synchronization and variation, as the two qualities inherent in the coalition of music and dance (Jackendoff & Lerdahl, 2006), suggest that this coalition is internally stable and will be able to execute a fast, complex and coordinated action (Jackendoff & Lerdahl, 2006).

The smallest effect of music is on liking dance performances is on the hip hop dance, a dance with an emphasis on freestyle, with a lot of attention being paid to musicality, that is, in hip hop dance dictates the rhythm and strives for creativity. It should be borne in mind that the music accompanying the choreographies shown to the interviewees within this type of

dance is not the choice of the choreographer himself. Still, it rather is a competitive solo performance in the category of hip hop freestyle where the judges choose the music. This information could explain the results obtained in this research.

The results showed that the variables *use of space in dance performance* and *use of dance figures* are statistically significant predictors of the influence of music on the liking of dance performance, where there is a positive correlation, that is when space is more used in dance performance, there is a more significant influence of music towards liking the performance itself. These results can be accounted for if we recall some of the previous studies. Namely, (Vukadinović, 2013), it is known that the type of dance is defined as an existing structure of symbols and established norms (existing artifact) through its formal characteristics, which affects not only the way in which a particular choreography will be created (a new artifact), the freedom to use space, different dance figures and to express emotions, but also how the audience (others) will experience it (Vukadinović, 2013). Since dance and music form a coalition system (Hagen & Bryant, 2003), it can be assumed that dance type is a variable that is a potential mediator between the subjective experience of dance and the effect of music on this experience, which can be verified in some subsequent papers.

It was also found that the *expression of emotions in dance performance* is a statistically significant predictor of the influence of music on liking dance performance. Besides, this predictor accounts for the most significant percentage of the variance of the before mentioned criterion variable. We can understand these results if we are reminded that music can reliably convey recognizable emotions to listeners, even those who listen to music from an unknown repertoire of tones (Balkwill & Thompson, 1999).

Conclusion

The results of this paper suggest that there is indeed a difference in how much music influences liking dance performances, between dif-

ferent types of dance. Based on these results, we can conclude that music is essential to contemporary dance, both in relation to ballet and hip hop. Music shows the lowest effects on liking when it comes to hip hop. Research also shows that emotional expression is the most crucial predictor of music's impact on dance performance.

The theoretical significance of this research lies in a better understanding of the close relationship between music and dance. On the other hand, the practical importance is above all for dance instructors, who can use these results for practical purposes, they can, for example, pay greater attention to music and the choice of music that goes with a given dance, so that students can relax and learn the necessary steps more easily.

The disadvantages of this research are that only three types of dance are included, so for further research, we suggest including more types of dance. Further, another drawback is that music was not a manipulative variable. Namely, it is necessary to take into account contemporary dance goes with contemporary music, that is, music adapted to the age in which we now live and that, consequently, this type of music is probably the most appealing to the respondents. Due to this, we suggest presenting different types of dances to the respondents for further research, but with the additional variation of music, to check whether music is really essential for the experience of contemporary dance, or whether contemporary music is most pleasing to the respondents, which additionally influences the more pronounced liking of this type of dance. We also go over the examination of both dancers and non-dancers and compare their results.

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Perception and
Cognition in a Context
of Music Analysis

The Influences of Chord Progression Probability, Predictive Processing, and the Behavioral Inhibition System on Aesthetic Appreciation of Pop Songs

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Abstract

The precision of prediction errors respectively the relation between the prediction model's parameters (estimated values) and the observed values determines the amount of incongruence or perceived psychological entropy. The following studies attempt to operationalize perceived psychological entropy of musical stimuli on a harmonic level by the probability of occurrence of chord progressions in popular music as well as link predictive processing abilities to inhibition and approach behavior by integrating those parameters into a regression model for preference in relation to perceived psychological entropy (prediction error precision). Based on analyses of thousands of pop songs progression probability was calculated as the conditional probability of each scale-step following the one before in up to four chords in a row. Twenty-eight different stimuli were composed based on progressions with 9 different probabilities, whereby the harmony was the independent variable and tempo, dynamics, instrumentation and voicing were held constant. To investigate the influence of sound, the stimuli were arranged in three different sound settings. Participants were asked to rate the stimuli according to their aesthetic appreciation as well as familiarity and complexity. They also were asked to describe their experiences and personalities regarding sensation seeking, openness, extraversion, predictive processing impairment, BIS/BAS, and music education. According to prominent models regarding arousal potential, approach behavior and preference by Berlyne and DeYoung, an inverted-U relation could be found between the preference for a progression and its perceived psychological entropy. Regression analyses indicate that preference can be predicted by an interaction of psychological entropy index, BIS/BAS and predictive processing abilities.

Introduction

The inherent logic in harmonic progressions and the development of compositional principles over the past centuries shape our expectation of musical stimuli to a great degree. The balance between prototypical and unpredictable musical events seems to create an optimally challenging and therefore most pleasurable experience. What sounds like an easy guide to compose the next hit song is actually much more complex: not only the objective prototypicality of a musical piece influences the aesthetic judgment but also the recipient's individual experiences in relation to the music.

So it has been reported that music graduate students preferred more atypical chord progressions, whereas musical novices preferred the relative harmonic prototype (Smith & Melara, 1990). This can be explained by a prominent theory about the optimal arousal potential, which a stimulus or situation provides. This theory states that preference – and thus approach behavior – is at its maximum level if the arousal potential is optimal for the individual's cognitive processing capacities (Berlyne, 1974). In accordance with this, arousal potential respectively perceived psychological entropy is determined by accessible information (experience) and leads to different kinds of exploration behavior: either reinforcement learning or approach behavior (DeYoung, 2013). The aesthetic evaluation depends on this relation, accordingly. In terms of cognitive fluency and liking, this theory resolves not only how complexity can explain variances in liking (North & Hargreaves, 2001), but also supports the

prominent inverted-U model of preference (Chmiel & Schubert, 2017). This complex relation between an individual and the situation or stimulus, weighing all the present factors as well as experiences against each other to determine the amount of perceived psychological entropy to decide, which kind of exploration behavior will be most rewarding (reinforcement learning through diverse exploration or gain of information through specific exploration) is not only strongly related to behavioral inhibition and approach systems, but also the theory of predictive processing. Thus, both of these traits will be integrated into a regression model of preference for musical stimuli with different amounts of perceived psychological entropy.

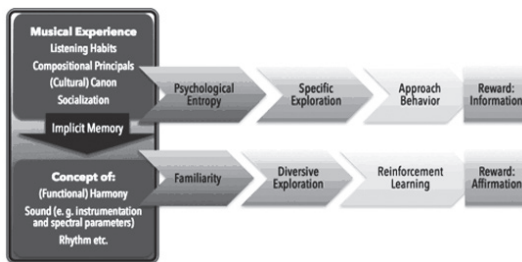


Figure 1. Model of musical experience influencing prediction models about musical stimuli, which can result in two different kinds of rewarding approach, depending on the amount of perceived psychological entropy.

As a tool to operationalize musical entropy, the probability of each harmonic scale-step following another was calculated based on a statistical analysis of thousands of pop songs. Two studies were conducted, the first one to evaluate the applicability of chord progressions as an objective indication of perceived entropy and whether or not correlations between aesthetic appreciation of music and the probability of its harmonic progressions can be observed, the second one to integrate BIS/BAS (Carver & White, 2013) as well as predictive processing abilities into a regression model for confirming coherent predictors for preference, independent of chord progression probabilities.

Both experiments will be presented below.

Method

First Study

Stimuli. Fifteen musical stimuli were composed (5 different probabilities in 3 sound settings), each of them containing 11 bars with 120bpm, the first bar introducing the dominant seventh chord and leading into 8 bars of chorus, followed by 2 bars of tonic fade-out. Each chorus was defined by a one-time repeated progression of four chords as the only altered variable. For example, the functional harmonic description of the stimulus with the highest probability would be V⁷-I-V-vi-IV-I-V-vi-IV-I-I.

The different sound settings were labeled ‘Rock’, ‘Pop’, and ‘EDM’. For each sound setting, instrumentation, dynamics, tempo, etc. were held constant, so harmony would be the only altered variable.

Participants. Participants ($N = 73$, $M[\text{age}] = 26.36$; $SD = 10.86$) were asked to rate the stimuli according to their aesthetic appreciation as well as i. a. familiarity, complexity, and innovativeness. They also were asked to describe their musical abilities and experiences and personalities regarding sensation seeking (BSSS; Hoyle, Stephenson, Palmgreen, Lorch, & Donohew, 2002) as well as openness and extraversion (TIPI; Gosling, Rentfrow, & Swann, 2003).

Second Study

Stimuli. The ‘EDM’ sound setting from study one was used in addition to a newly created second sound setting with similarly artificial sounds, but less percussiveness and inharmonicity. For both settings, 9 Stimuli were composed (in the same manner as in study one) to create a greater variety of progression probability.

Participants. Participants ($N = 73$, $M[\text{age}] = 32.36$; $SD = 11.85$; 32 of whom with a diagnosis of autism spectrum condition) were asked to rate the stimuli regarding aesthetic appreciation as well as liking, familiarity, and complexity. They were also asked to describe their musical background as well as experiences and behavior regarding predictive processing (IPPI) and on the BIS/BAS scale (Carver & White, 2013).

Results

First Study

First of all, there were no general significant correlations between liking and measured personality traits (sensation seeking, openness, extraversion) to be found.

In general, an inverted-U correlation could be observed between preference and perceived psychological entropy ($R^2 = .649, p < .001$). The psychological entropy index (PEI) was calculated as the product of a priori calculated progression probability and ratings of complexity as well as the sound setting, which was taken into account as a constant.

Differences between the sound settings could be observed for every progression but the most probable one. Significant, but small effects, have been shown by t -tests for the 3rd probable progression, which was preferred in Pop ($p = .027$), and the 5th probable progression, which was preferred in EDM ($p = .037$). A medium effect could be found for the 4th probable progression, which was preferred in EDM ($p < .001$).

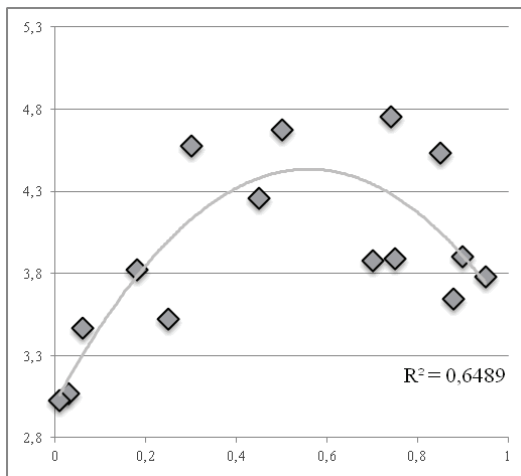


Figure 2. Regression model of psychological entropy index (PEI; x-axis) and preference rating (y-axis).

Regression analyses revealed an interaction of familiarity and coherence to be the best predictor for liking the 2nd probable progression in EDM ($t = 2.491, p = .017$), and in Pop an interaction of familiarity and complexity ($t = 2.559, p = .014$).

For the liking of the 5th progression, there was no satisfying regression model to be found. Although, in EDM the variance in liking could be explained by musical experience ($F = 7.589, p < .01$).

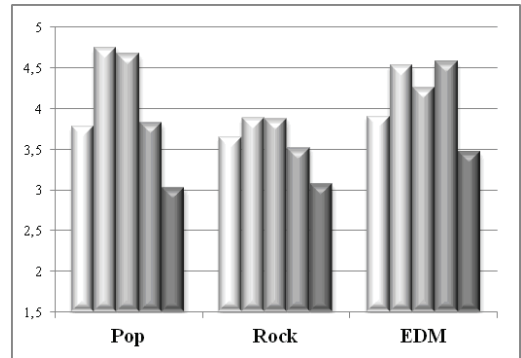


Figure 3. Preference sorted by progression probability (from most probable to least probable) in each of the 3 sound settings.

Second Study

Between the 41 neurotypical and the 32 individuals on the autism spectrum, significant differences could be observed. Participants with ASC described higher behavioral inhibition ($t = 2.082, p = .041$) and lower behavioral approach in each dimension (fun seeking: $t = 7.168, p < .001$; reward responsiveness: $t = 3.159, p = .002$; BAS drive: $t = 2.231, p = .029$). Furthermore, a significantly higher predictive processing impairment could be observed in participants on the autism spectrum ($t = 10.00, p < .001, d = 2.359$). Regarding aesthetic evaluation, individuals with a high degree of predictive processing impairment interestingly rated the stimuli to be lower in complexity, but also expressed less preference in general.

To optimize the parameter weighing of the PEI, this time it was calculated as the product of a priori estimated progression probability and ratings of complexity and familiarity. The inverted-U correlation could again be observed between preference and perceived psychological entropy ($R^2 = .551, p < .001$).

Regression analyses revealed consistent interactions between predictive processing impairment, BIS/BAS and perceived psychological entropy as predictors for preference as follows.

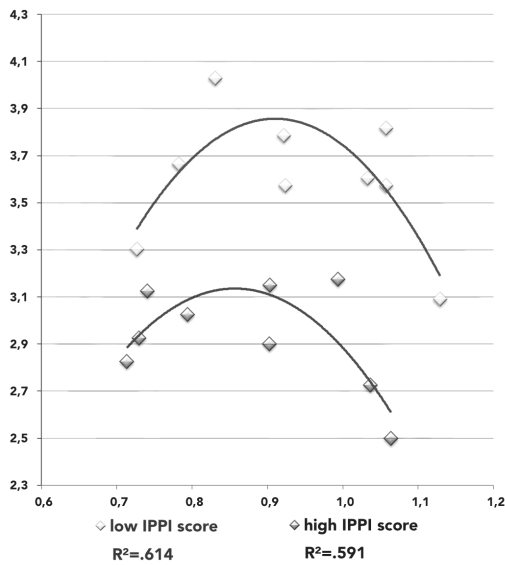


Figure 4. Regression model of PEI (x-axis) and preference rating (y-axis), showing individuals with high IPPI score (high predictive processing impairment) experiencing more entropy but also having a higher degree of preference for the stimuli in general.

Table 1. Regression models to predict preference.

Bayesian regression models of preference for each progression, sorted by mean PEI				
St.	<i>M</i> [PEI]	Best Predictors	BF ₁₀	R ²
03	0.728	BIS * IPPI * PEI	1503.806	.303
01	0.744	BIS * IPPI * PEI	447.517	.276
02	0.781	BAS-R * PEI	1055.183	.265
04	0.851	None	-	-
05	0.912	BIS * IPPI * PEI	37.055	.214
06	0.972	BAS-R * PEI	16.204	.161
08	1.021	BAS-F * BIS * PEI	361.285	.271
07	1.034	BIS * IPPI * PEI	46.472	.220
09	1.093	BIS * IPPI * PEI	64.603	.228

BIS: Behavioral Inhibition System

BAS-R: Behavioral Approach System – Reward Responsiveness

BAS-F: Behavioral Approach System – Fun Seeking

PEI: Psychological Entropy Index

IPPI: Introspective Predictive Processing Inventory (measuring degree of PP impairment)

Conclusion

In the first study, the differences per sound setting suggest that sound influences the perception of harmony. The “unusual progression” being the most preferred one amongst the stimuli with the most current sound design from study one suggests that the familiarity of the sound compensates the entropy of the progression, leading to a more tolerable arousal potential.

Additionally, there could be a mere exposure effect responsible for the strong liking of the 2nd progression in ‘EDM’ since this combination sounded very similar to recent summer hits.

In the second study, with predictive processing impairment, as well as behavioral inhibition and approach, being taken into account, the regression models for preference were much more consistent and coherent. These results suggest that high precision in predictive processing impairment leads to insufficient compensation of entropy, reinforcing BIS and thus decreasing preference.

Additionally, of all the stimuli those had the highest rating in “diverse evaluation” (affective/objective liking; MIAU-2D, Roos, 2019) for which BAS was part of the regression model. Further research is needed to investigate this relation since it is counterintuitive to the theory of BAS leading to greater involvement (“specific evaluation”) motivated by seeking a reward in a gain of information by unfamiliar stimuli. However, it could be hypothesized that BAS does motivate both kinds of exploration, which makes it much more interesting than “fun seeking” is involved in the preference for a chord progression with low probability, whereas “reward responsiveness” might be responsible for exploration that leads to reinforcement learning.

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Perception of the Macroform in the Second of Babbitt's *Three Compositions for Piano* (1947)

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Abstract

The macroform in the second of Milton Babbitt's *Three Compositions for Piano* (1947) is defined by the twelve-tone set and its transformations. It is challenging to recognize these transformations aurally since the organization of the material is relatively complex. Moreover, in the context of the piece, it is challenging to determine the boundary between statements of two successive sets and, consequently, the boundaries between form sections. Therefore, this analysis focuses on aurally detectable surface details in Robert Taub's performance. The aim is to establish a connection between recognizable surface details and macroform, and to discover how performer approaches a form division and whether he signifies it. A comparison of auditive analysis and macroform reveals that memorable details are located exactly on boundaries of form sections. The overlapping of structural and auditive analyses could suggest the composer's intention of marking form division with surface details. The analysis is in line with the approach to post-tonal music which places overall sound in the center of analytical attention, with the emphasis on the possibility of different analyses and perception of different details in other performances.

Introduction

Milton Babbitt is a central figure of integral serialism in the USA. His compositional theory is influenced primarily by the combinatorial techniques of Schoenberg and Webern. The roots of all the innovations he presented throughout his long opus can be recognized in his early compositions. *Three Compositions for Piano* are an example of a complex organization of pitch, duration, register, and dynamics. According to George Perle (1977), this is the earliest work in which nonpitch components are serialized (p. 132). Although the piece is interesting for its compositional procedures and serial or-

ganization, the following analysis will focus on the overall sound of Second Composition and prominent details that can be extracted from it. A comparison of auditory analysis and score analysis of the underlying structure explores whether these details are somehow connected to the perception of form division. The analysis is based on Robert Taub's performance, since performer is the one who "(literally) makes music" (Leech-Wilkinson, 2009: 791) and the overall sound as an object of analysis is a result of specific performance. The analysis aims to find the causes of perceptual consequences in the performer's actions and procedures. Nevertheless, the possibility of different auditory analysis in different performances is not excluded.

Performance Analysis

At the beginning of the piece, the texture is traditional—melody in the right hand and accompaniment in the left hand. After measure four texture becomes more complex, and the opening melody is present only in melodic fragments. All these fragments resemble and can be connected to one part of the opening melody—first interval. The opening interval (ascending perfect fifth) and intervals in fragments that appear later in the piece are not the same, but they share some common features that make them similar (for example, fragments consist of short note followed by long note). These fragments can be found throughout the piece.

In more complex textures after the opening, the sound is distributed through different and sometimes extreme registers. The prominent melodic fragments seem to be located in the middle register. All sound events can be organized in three auditory areas: the middle one with important and noticeable melodic frag-

ments, surrounded by higher and lower ones, which sound more like an accompaniment to the middle one. Interestingly, this three-part division does not correspond to the organization of twelve-tone material into four registers with unique dynamic: the bass (*piano*), the tenor (*mezzoforte*), the alto (*forte*), and the soprano (*pianissimo*) (Figure 1). The reason why this

(Bregman, 1990: 434). The gap between two pitches that could guarantee grouping in time or in pitch space is not precisely established. This gap is flexible; it depends on musical context, and possibly on performance. In the case of this composition, the winner is mostly frequency proximity which integrates pitches from the same register into one stream even if they are

unsuccessful in time. The overall sound could be divided into three different streams already mentioned above. Perception of melodic fragments located in the middle auditory area could be justified by the toneness principle (Huron, 2001), according to which the pitch perception is at its highest in the middle of the auditory area. Besides already mentioned melodic fragments,

tempo changes are also noticeable in the context of the whole piece.

Macroform

Since this is a twelve-tone piece, the form is defined by a twelve-tone set and its transformation. It is difficult to recognize these transformations aurally since the organization of the material is quite complex. Moreover, in the context of the piece, it is challenging to determine the boundary between statements of two successive sets and, consequently, the boundaries between form sections. Figure 2 shows the macroform or global form of the piece (Addessi, 2010; Addessi & Caterina, 2005; Baroni, 2003) based on the analysis of compositional procedures: three symmetric parts of 16 aggregates are divided with two-aggregate sections in a slower tempo. When the score analysis is compared with the auditory analysis of this performance, the result is the following: extracted cues are located at the beginnings of the new sections. Segmentation within the larger part is marked by texture change, pause or extreme dynamics. Repetition of the same cue within one section evokes similarity and connects parts of the section.

type of division is not noticeable in sound is that the tenor and the bass often display overlappings in the register since they are in the same critical band

Perception of melodic fragments extracted from the overall sound can be explained by music psychology theories. According to Deliège's cue abstraction theory (1989, 2001, 2007; Deliège, Mélen, Stammers, & Cross, 1996), the cue represents a "salient element prominent at the musical surface" (Deliège, 2001: 237). It is something that captures listeners' attention while listening. Through repetitions, this cue is remembered, and this process is called imprint formation (Deliège, 2001: 238). Since the listener cannot remember all the ways in which cue is presented, he captures the main features through the process of simplification. The opening interval functions as a cue imprinted in memory as a consequence of repetition. Even if it is altered later through the piece, the similarity with the imprinted cue is significant enough that all melodic fragments can be recognized as related.

The principle of integration (Bregman, 1990) is responsible for the possibility of following different streams in the piece. Proximity in time and frequency proximity "compete" with one another in grouping tones in one stream

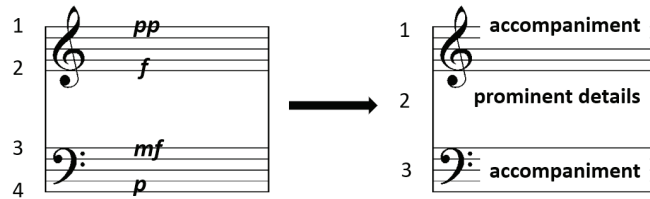


Figure 1. Organization of twelve-tone material into four registers with unique dynamic results in three auditory areas.

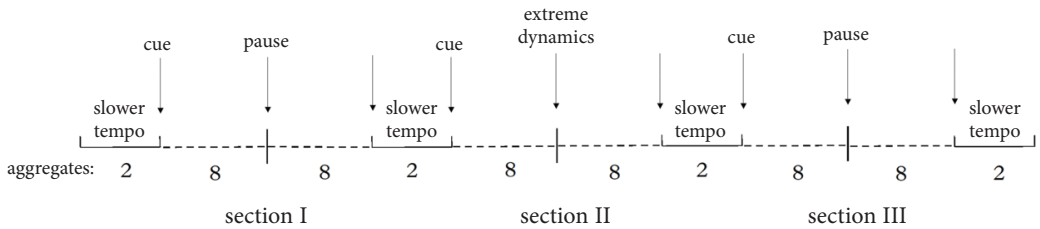


Figure 2. Macroform in Second Composition for Piano.

Conclusion

The overlapping of structural and auditive analyses could suggest the composer's intention of marking form division with surface details. Taub's performance contributes to this observation. If the performer's strategy results in a specific sound, the question is would different performance result in a different sound. The analysis is in line with the approach to post-tonal music which places overall sound in the center of analytical attention (Utz, 2013), with the emphasis on the possibility of different analyses and perception of different details in other performances.

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Perception of Rhythmic Patterns, Meter, and Measure among Music Students

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Abstract

Rhythm represents a dynamic force that enables music communication when a cognitive, emotional, and aesthetic experience arises (Radoš, 2010). We rely on a theoretical conception of authors who believe that metric and rhythmic grouping are hierarchically organized (Lerdahl & Jackendoff, 1996). This research aims to determine: 1. the accuracy of observation of meter and rhythmic patterns within tasks of different duration; 2. whether the accuracy of the meter and rhythmic pattern recognition is related to the duration of the pattern; 3. how the previously acquired knowledge and experience correlate with the perception of rhythmic patterns. The questionnaire has three parts, where the third part includes 12 sound examples. The sound examples differ in their length (2, 4, 6, and 8 measures), meter, and the type of measure. The respondents had the task to determine the meter and the measure and then to write down rhythmic patterns. This research showed that when the number of measures within the patterns progressively increases, the accuracy of the measure perception is more likely. Accuracy of rhythmic pattern perception was considerably higher in the units of two and eight measures, while significantly less at the level of four and six measures. 81.6% of the respondents answered that during the observation of rhythmic patterns, they parallelly followed the rhythm and the melody, while 11.5% answered that they followed only the rhythm. The results indicate that the accuracy of measure and rhythmic pattern perception was significantly higher at the level of longer units. This finding suggests that the decision was based on the perception of relations in larger patterns. A better result on larger patterns suggests that music memory is better at the level of longer units, which is contrary to the initial expectations. During the perception of rhythmic patterns, the majority of respondents rely on the melodic component.

Introduction

Given that music is played over time, the primary function of the rhythm is to introduce organizational temporal patterns among the lower tones and to provide the kind of “stimulative” organization that will be understandable to the listener. If such an organization does not exist, the sounds that listeners hear will not be perceived as music (Radoš, 2010: 157).

Historically, understandings of the nature of musical abilities have evolved mainly in two directions: the Essentialist – who views musical ability as the sum of largely independent, most often sensory qualities, and the Unitarian – who speaks of a general aptitude. In Carl Seashore’s view, musical ability is a set of loosely coupled basic sensory discrimination skills (experience of height pitch, volume, duration and timbre, rhythm and tonal memory) that have a genetic basis and do not change over time (Bogunović, 2010: 76). On the other hand, according to Herbert Wing, musical intelligence is a general ability to perceive and evaluate that occurs in two basic ways: as a musical ability in the narrow sense, that is, auditory sensitivity (distinguishing intervals, number of tones in a chord, memorizing tone and rhythmic patterns, noticing tonal modulation) and the ability to evaluate music aesthetically (to evaluate the adequacy of performing musical pieces in terms of rhythmic accentuation, harmonization of melody, dynamic nuance, phrasing) (Wing, 1971, as cited in Bogunović, 2010: 76).

In the psychology of music, rhythm has been explored less comprehensively than the tone’s pitch. Interest in this aspect of music aroused in the nineteenth century and grew into a scientific consideration of a wider scope only in the 1950s. The role of rhythm in the percep-

tion of music is discussed by many authors and considered to be basic in music. Authors such as Jay Dowling and Dane Harwood found that rhythm is more important for musical cognition – perceiving, learning, remembering, and understanding music – than pitch information (Radoš, 2010: 156).

The temporal organization factor is essential for achieving and disrupting continuity. Differences must first be drawn between the pulse, the meter, and the rhythm. The perception of the pulse involves the objective or subjective division of time into the proper appearance of equally stressed pulses. Although a sense of pulse is required to give the impression of a meter, and although it is universally present in the rhythm perception, the pulse can exist and indeed exists, without meter or rhythm. On the other hand, the observation of a meter involves an awareness of the proper occurrences of stressed and unstressed beats. A necessary condition for a metric organization is to differentiate the beats into accent and non-accent beats. The perception of rhythm encompasses one or more unstressed beats concerning the stressed beat. These groupings may be more or less clear, and within any meter, they may vary indefinitely. The basic difference between the pulse, on the one hand, and metro-rhythmic plane, on the other, is that these other modes of a cognitive organization include distinguishing beat into stressed and unstressed, and the first not (Mejer, 1986: 144–146).

Authors Lerdahl and Jackendoff (1977) consider rhythmic grouping to be the most basic component of musical understanding. Rhythmic groups, as well as metric ones, are hierarchically organized: surface structures are subdivided into larger, depth assemblies, which are realized at a deeper, more abstract level and are based on combinations of duration structures, as well as melodic, harmonic, textural and non-musical data (Lerdahl & Jackendoff, 1977: 116).

These authors (Lerdahl & Jackendoff, 1996) also consider a metric structure, which is independent of the group structure. With proper musical cues, the listener will instinctively infer the correct, hierarchical beat pattern to which he relates the actual musical sounds. Without

regularity, there can be no metric structure, and therefore the metric structure is a relatively local phenomenon. The rhythmic complexity of tonal music results from the interaction of metric structure with the structure of groups and the structure of tones pitch (Lerdahl & Jackendoff, 1996: 68).

The subject of the research is the perception of rhythmic patterns at the level of two, four, six, and eight-measure units and a determination of the meter and type of a measure. Nevertheless, one of the aims is allowing indirect conclusions about music memory and whether and to what extent, the accuracy of recognizing rhythmic patterns is related to previously acquired knowledge and experience.

Aims

1. to determine the accuracy of perception of the rhythmic patterns within a smaller units (two measures) and then larger units (four, six and eight measures); to determine whether the accuracy of recognition of rhythmic patterns, meter, and type of measure is higher at the level of shorter or longer units, or whether it is related to the length of the patterns; to indirectly learn about the scope and capacity of music memory within the tasks of different length.

2. to determine whether the previous knowledge and experience are in a correlation with the perception of rhythmic patterns, meter, and type of measure.

3. to determine whether the respondents followed the melody when writing rhythmic patterns or whether they relied solely on the rhythmic component; see if there is a significant difference in the perception of rhythmic patterns, meter, and type of measure between the students of theoretical directions and performers.

Method

Sample

In this exploratory research, a suitable sample consisted of bachelor (79.8%), master (16.9%), and doctoral (3.4%) students of the Faculty of Music in Belgrade. The total num-

ber of respondents was 89, of which 31.5% were male, and 68.5% were female. The age of the respondents ranged from 18 to 35 years, with the highest number (68.6%) being between 21 and 23 years old. Because students from all departments of this Faculty were included, it is possible to notice a fairly uniform number of respondents of theoretical directions (musicology, ethnomusicology, music theory, music pedagogy) and composition with 51.7% and performers 48.2% (piano performers, strings, wind instruments, poly-instrumentalists, jazz performers, solo singers, conductors). Although the uniformity of respondents of theoretical directions and performers was noticeable, within the two groups, the highest percentage were students of music theory (22.5%) and piano department (22.5%).

Measuring Instrument and Variables

The measuring instrument in this research was a questionnaire (8 open-ended and closed-ended questions) and the sound test. The first part of the questionnaire (questions 1 to 4) was related to the general data of the respondents, which included gender, age, year of study, and study direction. The second part of the questionnaire (questions 5 to 8) that was related to educational variables contained questions about the previously acquired knowledge and experience. First, the respondents answered questions about the self-assessment of the efficiency of perception and reproduction of rhythm, which contained the offered answers (very bad, bad, good, very good, excellent) on a five-point Likert-type scale. Then they answered questions related to the results achieved, that is, the average grade in the course of studies so far in the Solfeggio course and in the Harmony course (for the respondents of theoretical directions) and the Music analysis course (for the performers).

Sound Test

The most important part of the test was the sound test, which came with 12 audio examples taken from the piano literature. These short examples from different compositions served as patterns for recognizing the rhythmic patterns,

the meter, and the type of a measure. At the end of the questionnaire, an open-ended question was asked, *Did you follow the melody during perceiving and writing down of rhythmic patterns, or did you rely on the rhythmic component?*

Sound Material

Short segments from solo piano compositions belonging to different historical and stylistic epochs Baroque, Classicism, Romanticism, 20th Century (Folklore Expressionism) were used. In sound examples, the homophonic texture prevailed, and the examples differed in the length of a given whole (two, four, six, and eight measures) and the type of meter (double or triple) and measure (2/4 or 4/4, 3/4 (3/8), 6/8).

Data Processing

Quantitative and qualitative data processing, descriptive analysis, correlative data analysis, and One-way analysis of variance (One-Way ANOVA) were conducted. Statistical processing of data was performed in the computer program SPSS Statistics.

Results

Descriptive Analysis

As part of the closed-ended questionnaire, the respondents assessed their own ability to perceive and reproduce rhythm (Likert scale from 1 to 5). It can be seen from Table 1 that the highest percentage of respondents rated their ability as very good.

The results in Table 1 also show that, in general, all the respondents had a significantly better self-assessment of rhythm reproduction and a slightly lower rhythm perception skill. Data on average grades in the Solfeggio course ($M = 9.31$, $SD = 0.78$), the Harmony course for respondents of theoretical directions ($M = 9.32$, $SD = 0.81$) and the Music analysis course for the performers ($M = 8.92$, $SD = 0.93$) show that they are very high (maximum is 10). The frequency distribution indicates that as many as 40.5% of the respondents have the highest grade 10 in the Solfeggio, and the same percentage for the same grade in the Harmony among students

Table 1. Self-assessment of rhythm perception and reproduction.

Self-assessment	Very bad	Bad	Good	Very good	Excellent
Self-assessment of rhythm perception	/	1.1%	39.3%	42.7%	16.9%
Self-assessment of rhythm reproduction	/	/	22.5%	47.2%	30.3%

of theoretical directions. When it comes to the average grade for Music analysis of the performers, 26.2% of respondents have a grade 9, while 23.8% have a grade 10.

Accuracy of the Perception of the Rhythmic Pattern

During the perception of the rhythmic patterns, respondents were asked to determine the type of a measure and write the rhythmic patterns. The maximum of measures (regardless of their duration) was 6. When evaluating the results of this variable, a scale was formed in which 2 indicated correct, 1 indicated partially correct, and 0 indicated an incorrect answer. By looking at the results related to the type of measure perception, it can be seen that the values of arithmetic mean increased progressively as the length of the given patterns increased. As the expected maximum score in sound tasks was different, their arithmetic means were transformed to the Z scale. In this way, it was possible to compare achievements across examples of different lengths. Findings indicate that perception of the rhythmic units is significantly greater in two-measure ($M = 1.32$, $SD = 1$) and eight-measure units ($M = 1.08$, $SD = 1$), while significantly

less at the level of four-measure ($M = -9.23$, $SD = 1$) and six measure ($M = -3.47$, $SD = 1$) units.

It could be concluded that the perception of the type of measure is more accurate with increasing the length of a given rhythmic pattern because the internal organization of recognition is larger. This finding coincides with the expectations. The perception of rhythmic units shows surprising results. Rhythmic units are better recognized at the level of two-measure units because respondents perceive rhythm from unit to unit. Nevertheless, the results show that it is better to perceive at the level of eight-measure units, which can be conditioned by the repetition of the same rhythmic units within those longer units. By calculating the statistical significance of the differences between the arithmetic means, the idea was to establish a statistical confirmation of the obvious differences in the accuracy of the type of measure observations when increasing the given sound examples.

The results indicate that there is a statistically significant difference between achievements in the perception of the type of measure (Table 2).

By comparing the arithmetic means all of the patterns of different duration, it is shown that the accuracy of perceiving the type of measure is higher as the length of the given patterns

Table 2. Significance of difference in the accuracy of the perception of the type of measure.

Perception of the type of measure								
Two-measure units		Four-measure units		Six-measure units		Eight-measure units		<i>t</i>
M	SD	M	SD	M	SD	M	SD	
3.18	1.93	3.65	1.82					$t(88) = -2.08, p = .02$
3.18	1.93			4.08	1.60			$t(88) = -4.15, p < .001$
3.18	1.93					4.55	1.50	$t(88) = -7.19, p < .001$

increases progressively. This is (somewhat) expected because, by the nature of things, it is easier to determine the type of measure in a longer-lasting sound task.

Correlation of the Previously Acquired Knowledge and Experience with the Perception of the Rhythmic Patterns

Correlations between the self-reported evaluation of rhythm perception and reproduction, and the accuracy of rhythmic pattern perceptions, that is, type of measure and rhythmic units, were not statistically significant in this research. But there are some correlations between the achievement of a sound test and academic achievement. A statistically significant correlation was found between the average grade in the Solfeggio course and the perceptions of rhythmic units in four ($r = 0.34, p < .01$), six ($r = .38, p < .001$) and eight-measure ($r = .28, p = .008$), and in total ($r = .37, p < .001$). When all sound tasks were taken into account together, there was a significant correlation between the type of measure perceptions and the average grade achieved in the Harmony course ($r = .37, p < .001$). These results indicate that solely grades in the Solfeggio course are related to the perception of rhythmic units in sound tasks, whereas grades achieved in the Harmony and Music analysis courses do not correlate with the same results. However, the average grade in the Harmony course correlates with the perception of the type of measure, regardless of the duration

of given rhythmic patterns. Perceiving the type of measure and rhythmic patterns is a skill acquired through theoretical and practical work, and these results indicate that the Solfeggio classes have positive results on this skill among music students. There is no significant correlation with subjects that imply an understanding of the harmonic processes and musical structures within larger entities. These subjects require cognitive insight into a greater whole and hierarchical structures and have no implications on acquiring the skill of perceiving and writing down rhythmic patterns.

Focusing on Certain Components of Musical Expression During the Perception of Sound Examples

During the perception of rhythmic patterns, 81.6% of the respondents said that they parallelly followed the rhythm and melody, while 11.5% said that they only followed the rhythm. 6.9% of the respondents wrote that they relied only partly on the rhythmic component and partly on both components together during the writing. A one-way analysis of variance (One-way ANOVA) was used to determine whether there was a difference between the perception of the type of measure and parallel following the rhythm and/or melody. The results indicate that when it comes to smaller patterns (two-measure), respondents decide the type of measure based on following the rhythm and melody at the same time (Table 3).

Table 3. Significance of differences in the perception of the type of measure and the rhythm and/or melody.

Measure	Only Rhythm			Rhythm + Melody (partially)			Rhythm + Melody			ANOVA
	M	SD	N	M	SD	N	M	SD	N	
Two measure units	2.10	2.02	10	2.00	1.27	6	3.43	1.92	71	$F(2.86) = 3.43, p = .037$
Four measure units	2.40	1.90	10	2.83	2.86	6	3.97	1.59	71	$F(2.86) = 4.45, p = .014$
Six measures units	3.80	2.48	10	3.33	1.86	6	4.22	1.35	71	$F(2.86) = 1.15, p = .321$
Eight measure units	4.20	1.93	10	3.33	1.97	6	4.77	1.24	71	$F(2.86) = 3.49, p = .035$

During the perception of larger patterns, according to the existing results, the following of rhythm and melody is not statistically significant. By calculating the statistical significance of the differences between the rhythmic unit perceptions and parallel following the rhythm and/or melody, it was found that there were no significant differences. It can be assumed that during the perception of larger patterns, respondents include other components of musical expression or cognitive-organizational principles. One-way ANOVA was also used to see if there was a difference in the perception of the type of measure and rhythmic patterns according to the study direction (theoretical or performers) by the respondents. The results in Table 4 show that there is statistical significance in the perception of the type of measure in two, four and eight measure patterns in favor of the students of theoretical directions. At the level of perception of the type of measure in six measure patterns and belonging to different directions, it does not prove to be statistically significant. By calculating the statistical significance of differences between perceptions of rhythmic units and belonging to theoretical directions or performers, it was found that there were no significant differences.

the type of measure, the respondents' results progressively increase as the length of the given rhythmic patterns increases (from two to eight measures). This finding coincides with the expected outcomes, as meter and type of measure are significantly easier to detect over longer patterns. Also, this may be related to the fact that usually, with a melodic-rhythmic dictation task, students first listen to it as a whole (of eight or more measures) so they could determine the meter and type of measure, and then it is played in the phrases of two measures.

On the other hand, the perception of rhythmic units gives unexpected results. Music students perceived the best rhythmic units within the smallest patterns. This may indicate that the cognitive ability of the respondents functioned in a "small space" (two measures) as they observed from one rhythmic unit to the other. This result may also be related to the Solfeggio practice, as mentioned earlier, which implies that after playing the whole dictation, the phrase of two measures is played. Respondents also perceive well the rhythmic units within the longest patterns (eight-measure). It can be concluded that the scope and capacities of music memory of the respondents were significantly developed. However, good perception at the level of eight-

Table 4. Perceptions of measure with students of theoretical directions and performers.

Measure	Theoretical directions			Performers			ANOVA
	M	SD	N	M	SD	N	
Two measure units	3.65	1.80	46	2.67	1.96	43	$F(1.87) = 6.00, p = .016$
Four measure units	4.02	1.62	46	3.25	1.96	43	$F(1.87) = 4.03, p = .048$
Six measure units	4.34	1.33	46	3.80	1.80	43	$F(1.87) = 2.79 (1), p = .099$
Eight measure units	4.91	1.02	46	4.16	1.80	43	$F(1.87) = 5.93, p = .017$

Conclusions

The results indicate that the perception of the meter, the type of measure, and rhythmic patterns vary depending on the length of the sound example. When perceiving the meter and

measure patterns can indirectly be influenced by the repetition of the same rhythmic units within those patterns.

On the self-evaluation scale of rhythm perception and reproduction, the majority of respondents rated these abilities as very good

(slightly higher for reproduction than for rhythm perception). This may be related to Solfeggio grades, where a significant number of respondents (as much as 40.5%) have the highest grade (10). The results of the research indicate that there is a significant correlation between students' academic achievement, that is, the average grade in the Solfeggio course and perception of rhythmic units at the level of four-measure patterns and above. Whereas, there is a significant correlation between the average grade achieved in the Harmony course and the type of measure, no matter how long the rhythmic pattern is. The average grade achieved in the Music Analysis course (with the performers) did not prove to be statistically significant. From this, it can be concluded that conducting theoretical and practical work in the Solfeggio course (but also to some extent in the Harmony course) has positive and significant results in developing the skill of perception the rhythmic patterns, meters and type of measure at music students.

When perceiving and noting the rhythmic patterns, the majority of respondents stated that they parallelly followed the rhythmic and melodic components. By adjusting the variables of perceptions of rhythmic patterns, meter, and type of measure with rhythm and/or melody parallel following, the results obtained indicate that the respondents made perceptions of the type of measure in two-measure patterns based on the parallel following of rhythm and melody. At the level of larger patterns than two measures, the statistical significance of the results between the perception of rhythmic patterns, meter and type of measure, and following of rhythm and/or melody together was not shown. The assumption is that when perceiving the larger patterns, respondents include other musical components and cognitive-organizational principles. By adjusting the variables belonging to theoretical directions or performers and perceptions of rhythmic patterns, meters, and type of measure, the perception of the type of measure in two, four, and eight-measure patterns proved to be statistically significant, more in theoretical directions than in performers. These findings may be directly related to the fact that the students

of theoretical directions, according to the study curricula, attend quantitatively more lectures in the Solfeggio course, and therefore have much more practical experience in perception than the performers.

The results of this research indicate that various factors may influence the perception of rhythmic patterns. The length of given patterns depends on how well music students perceived the rhythmic patterns, the meter, and the type of measure. The important thing is the development of music memory. This research confirmed that high academic achievement (grades in the Solfeggio and Harmony courses) and self-assessment skills correlated with success in the perception of the rhythmic patterns. It has also been found that during the perception, music students find it difficult to separate the rhythmic from the melodic component, which is influenced by other components of the musical expression. All these findings can serve as a starting point for some new empirical research in the field of rhythm perception in music.

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Musical Flow Segmentation and Emotional Response of Music Students to Impressionistic Musical Piece

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Abstract

“Musical flow is the unit of a musical language, its highest-ranking unit, and it as a unity stays in the mind due to memory” (Popović, 1998: 152). The aims are: to establish the student’s ability to segment the piece at the syntax level; to learn about decision-making indicators in the segmentation; to determine the musical components that led the segmentation; to identify correlations of academic achievement and segmentation indicators; to find out about emotional response during listening the piece; to see the connection between the prevailing emotion when listening to decision-making indicators in the segmentation. A measuring instrument-questionnaire (6 general, 3 segmentation, 1 question for emotional response) and musical task (Debussy *Arabesque* 1) were heard twice with a score without markings for: meter, tempo, dynamic, bar-lines. After the first listening the respondents were asked to estimate the intensity of emotions and after the second listening they had to conduct segmentation. The results showed that they observed between 3–22 segments, while the average was 13 segments (expert assessment was 10). They segmented on the level of motive (26.4%), sentence level (70.1%) and macro level (3.4%). The average grade of students with theoretical directions was related to segmentation based on the knowledge of the piece, while the average grade of performers was related to segmentation based on the score. Students listen moderately segments without labels. The outgoing emotions are analogously with the character of *Arabesque*. The students with theoretical directions didn’t decide on segmentation based on the acquired knowledge that would apply in the new situation but based on the familiarity of the piece. Performers made segmentation based on the score-functioning of experience as a facilitation factor in perceiving chunks and segmentation. The practice of musical performance is more important than the learning of theoretical concepts—they don’t have application in new tasks.

Introduction

Background

The whole, in which the combination of the whole set of selected musical elements (elements of melody, rhythm, harmony, dynamics, agogic, texture, sound color, etc.) determines the choice of other musical elements, is called the musical flow. Within it, the musical sentence/phrase is the smallest standalone “higher order” whole. The meaningfulness of it represents the totality of all psychic factors that arise in our consciousness through sound relationships. The human mind remembers in the short term only the expressive motives and principles of their composition, while, in the longer term, it memorizes the entire sentence/phrase. A musical sentence/phrase is an indicator of emotional states (Popović, 1998: 152, 130, 236, 243, 235).

An important element for understanding the musical flow is the identification of a boundary that essentially articulates its being. The analysis involves the separation of different procedures in the process of drawing boundaries and determining their role in the realization of the musical flow. The importance of the border is because it separates, but also connects segments in the musical flow (Sabo, 2012: 22, 33).

The core of any music activity is cognition and then emotion. Cognition makes it possible, gives structure and pattern, and enables the conceptualization of music. Cognition in listening implies a structural term that refers to the segmentation of a structure and units are perceived as sequential or as stratified. The segmentation accomplished on three levels implies: micro syntactic, mezzo and macro level (Popović Mladenović, Bogunović, & Perković, 2014: 205, 192, 208).

Most people point to emotions as their main motivation for listening to music (Komosinski & Mensfelt, 2016: 432). The emotion evoked in the listener was the same as the emotion expressed in music, which is consistent with the idea that music can evoke emotions through the process of emotional contagion (Popović Mladenović et al., 2014: 34). The fusion of emotion and thought in music forms an aesthetic response to music (Popović Mladenović et al., 2014: 207).

In this paper, we were interested in the research of the musical flow segmentation, in the musical piece from the era of impressionism and its relatedness to cognition and emotions, as well as with the subjective perception of the duration of the musical piece.

Aims

1. To establish the students' ability to segment the musical piece from the era of impressionism at the level of the musical sentence/phrase (not at the level of motive!)
 - To learn about decision-making indicators in the segmentation process;
 - To determine the musical components that led the segmentation;
2. To identify correlations of academic achievement and segmentation indicators;
3. To find out about emotional response during listening the impressionistic musical piece;
 - To see if there is a relationship between the emotion that prevails when listening and the indicators of decision making in the segmentation process.

Research Method

Sample

The sample consists of students from different departments of bachelor, master and doctoral academic studies at the Faculty of Music in Belgrade. The research involved 87 respondents, 52.8% from the theoretic departments (music pedagogy, music theory, musicology, ethnomusicology and composition) and 47.2% from instrumental departments (strings, e wind instruments, poly-instrumental – guitar and

harpsichord, piano, jazz, solo singing), whose number is roughly even. Of the 87 respondents, 28.7% were male and 71.3% were female.

Variables

In this research, four groups of variables are present. The first group consists of general variables and they relate to gender, age, year of study and department attended by respondents. The second group are indicators of decision making about segmentation (acquired knowledge of musical form, intuition, score, articulation or knowledge of the piece based on playing or listening) and assessing the intensity of emotions (Likert scale from 1 to 5). The third group is about estimating the length of the piece. The fourth group refers to the level of segmentation (sentence level, macro level and motive level) and to the musical components of segmentation (caesura, beginning signal, end signal, melodic decline, longer note value, agogic and articulation, according to Sabo, 2012: 32) received from the marks in the score of the respondents.

Measuring Instrument

The measurement instrument contains two parts – the first part is a combination of questions and music task and the second part contains questions. After answering general questions, the respondents heard for the first time a musical piece – Debussy's *Arabesque* No. 1 (5.07 minutes, Harris, 2017), in order to have an insight into the overall composition and thus being able to look at the score from which, the labels for time signature, tempo, bar-lines, and dynamics, were removed.

The main part followed when the respondents listened to a piece of music once more and conducted a segmentation of the musical flow at the structural (middle) level, at the phrase/sentence level (not at the level of motive!). After the second listening, they were supposed to write down the number of segments they felt to exist in the musical piece. They then estimated the presence of decision making indicators for segmentation and accordingly had to answer the question about their success in segmenta-

tion of the piece. This question, as before, was conceptualized by using a Likert-type scale (from 1 to 5).

In addition, they needed to evaluate the intensity of the emotion after listening to the entire musical piece. They then evaluated the timing of the composition, writing for themselves as long as they thought the musical piece selected as the sample lasted.

Sound Material

A sound task, *Arabesque* No. 1 by Claude Debussy (*Achille-Claude Debussy*), performed by Noriko Ogawa (*Noriko Ogawa*), was used (Harris, 2017). The score was made in the computer program *Sibelius* 6.0.0 (Finn & Finn, 1987–2009) to remove bar-lines, as well as time signature, tempo, and dynamics, while a sound recording was played from the computer.

Data Processing

Data processing was performed in the computer program *SPSS Statistics*. The obtained results were created by descriptive analysis, correlation analysis (Pearson correlation coefficient), Crosstabs analysis and factor analysis (Principal component analysis).

Results

Description of the Elements of Segmentation, Achievement and Emotional Response

The indicators of segmentation. In one part of the questionnaire, the respondents have declared themselves about the indicators that they have activated during segmentation. From Table 1 below, it can be seen that most of them segmented the musical flow of the impressionistic piece intuitively ($M = 4.10$, $SD = 1.14$), based on the score ($M = 3.52$, $SD = 1.34$) and on the basis of their acquired knowledge of musical form ($M = 3.40$, $SD = 1.19$), as expected, because these three things are pervading. Intuitiveness is related to the acquired knowledge of musical form to all respondents, while mastering the score is related to the previously acquired knowledge. However, the results show that the smallest number of respondents segmented on the basis

of experience in playing this piece ($M = 1.15$, $SD = .66$), which means that very few of them were familiar with the chosen music sample in practice.

Table 1. The indicators of the decision on segmentation.

Segmentation indicators	M	SD	N
The knowledge of musical form	3.40	1.19	86
Intuition	4.10	1.14	87
Knowing the pieces based on listening	3.32	1.56	85
Experience in playing the piece	1.15	.66	85
The score	3.52	1.34	85
Articulation (ligature, agogic)	3.19	1.33	84

The Duration of the Piece

Music students were asked to estimate the duration of the selected piece of music, which is 5:07 minutes, and the result shows that the majority of respondents (34.5%) estimated that the composition lasts 5 minutes. This result shows that students have been very successful in estimating the duration of a musical piece because their assessment is close to its real duration.

The Segmentation of a Musical Piece

Based on the task given to the respondents to conduct the segmentation and to declare about the number of segments obtained after it, the results show that they perceived between 3 and 22 segments, while the expert evaluation was 10, with the highest number of respondents (18.4%) answered that there are 13 segments in the composition. Accordingly, the data indicate that music students on the basis of hearing moderately well hear segments of a musical piece when there are no labels.

Segmentation Levels

Music students segmented the musical flow mostly at the sentence level (70.1%), which was expected, according to the instructions they received before and during the research. The instruction was that, after the second listening,

they should segment the musical flow on a mid-level – at the phrase/sentence level (not at the motive level!) by drawing vertical lines in the score. Some students also segmented at the level of motive (26.4%), as well as at the macro level – at the level of periods and sections (3.4%), however, they are less present because the reading of the results shows that segmentation at the syntactic level prevails.

Musical Components

Based on different musical components, music students conducted a segmentation of the musical flow. Based on a qualitative analysis of student’s verbal responses, the categorization of responses was made. It can be seen from the Table 2 that the largest number of respondents conducted segmentation on the basis of articulation (32.2%) and on the signal of the end (23.0%), indicating that they included previously acquired knowledge of musical form as well as agogic (21.8%), while the smallest number of respondents segmented the musical flow based on caesura (1.1%).

Table 2. Musical components as guidance in conducting segmentation.

Segmentation in the score	Percent (N = 87)
Caesura	1.1%
Signal of the beginning	9.2%
Signal of the end	23.0%
Melodic decline	10.3%
Longer note	2.3%
Agogic	21.8%
Articulation	32.2%

Average Grade and Self-assessment of Students

Looking at the results we can see that the average grade of students with theoretical directions (Analysis of Musical Forms) is $M = 8.78$, $SD = 0.91$ while the average grade of performers (Analysis of Musical Work) is $M = 8.75$, $SD = 1.10$, which shows the same average grade for students with theoretical directions and performers (Table 3).

Regarding the self-assessment of music students in the segmentation of musical flow, the

result is $M = 3.32$, $SD = .82$. As this question is conceptualized by using a Likert-type scale, it can be observed that their self-assessment is positioned in the middle of the scale, which means that they are good at the segmentation of the musical flow.

Table 3. Average grades of students from the subject Analysis of musical forms (theoretical departments) and Analysis of the musical piece (instrumental departments) and students’ self-assessment of success in segmentation.

The achievements of students	M	SD	Min	Max	N
Average grade AMF	8.78	0.91	6	10	43
Average grade AMW	8.75	1.10	6	10	40
Self-assessment of performance in segmentation	3.32	0.82	1	5	85

Perceived Emotions

Respondents evaluated the intensity of 12 emotions after listening to the whole piece of music (Likert scale from 1 to 5). The results in Table 4 show that students find that the musical piece most evokes the emotion of relaxation ($M = 4.31$, $SD = .91$), satisfaction ($M = 4.23$, $SD = .83$) and carelessness ($M = 4.08$, $SD = 1.10$),

Table 4. Reported intensity of each emotion students experienced in listening.

Emotions	M	SD	N
Happiness	3.54	1.02	63
Joy	3.58	.98	81
Excitement	3.16	1.25	81
Carelessness	4.08	1.10	83
Pleasure	4.23	.83	82
Relaxation	4.31	.91	85
Depression	1.33	.72	80
Sadness	1.75	.88	83
Monotony	1.59	.97	81
Suffering	1.60	.84	81
Anger	1.11	.39	80
Fear	1.20	.55	81

which is consistent with the character of *Ara-besque*. On the other hand, all emotions in the opposite spectrum are consistently low, with sadness, monotony and suffering somewhat more pronounced, and in keeping with the melancholy nature of the piece.

In order to get a clearer picture of the reaction to the musical piece, a factor analysis (Principal component analysis) with Varimax rotation and Kaiser normalization was also performed, using a two-factor solution. The content of the two factors is different, but the domains of the respondent's emotional responses to listening to the piece are clearly distinguished (Table 5). The first factor is saturated with emotions of happiness, joy, and excitement, while factor two is overwhelmingly saturated with feelings of depression and sadness, but also of anger and fear. The second factor has a lower degree of saturation, but there is clearly an emotional reaction in the “negative” spectrum of emotions.

Table 5. Additional assessment of the reaction to the musical piece.

	Rotated Component Matrix ^a	
	Component	
	Factor 1	Factor 2
Happiness	.834	
Joy	.791	
Excitement	.697	
Carelessness		-.696
Pleasure		
Relaxation		
Depression		.715
Sadness		.503
Monotony		.557
Suffering		
Anger		.562
Fear		.609
Variance	29.568%	14.635%

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 3 iterations.

The Relationship Between Segmentation with Achievements and Emotional Response

1. The segmentation of the musical piece.

Reading the results, one could see that music students segmented the musical flow most often at the sentence level (70.1%), which was expected according to the instructions they received before and during the research. However, there are students who have segmented both, at the level of motive (26.4%) and at the macro level – at the level of periods and sections (3.4%), however, they are less present because it is obvious from the results that segmentation on a syntactic level is predominant.

By calculating the correlation between indicators for making decisions in segmentation, a statistically significant correlation was found between segmentation of the musical flow based on score and segmentation of the musical flow based on acquired knowledge of musical form ($r = .22, p = .041$). This allows the conclusion that the acquired knowledge is activated in the segmentation of the musical flow and, accordingly, it is logical that music students are able to follow the score. The results also show that there is an association between segmentation based on the score and segmentation of the musical flow based on articulation – ligature, agogic ($r = .49, p < .001$). Just as students are able to follow the score because of their acquired knowledge, they are also able to read graphic symbols from the score. Accordingly, this correlation is expected. Interestingly, intuitive decision making about segmentation was negatively correlated with acquired knowledge ($r = -.28, p = .009$) and knowledge of the piece based on listening ($r = -.25, p = .019$). This finding confirms the presence of two completely opposite strategies in making decisions.

In order to segment the musical flow at any level, it is necessary to include musical components for its implementation. In the section of description variables, we presented the musical components that students relied on when they were conducting the segmentation.

However, by monitoring the correlation between the number of segments in segmentation with the indicators of decision making in seg-

mentation, it appears that there are no statistically significant correlations. On the other hand, it has been shown that with the increase in the number of observed segments the level of segmentation decreases ($r = .65, p < .001$), which means that the more general level of perception of a musical piece also leads to the observation of a smaller number of segments. This finding is not expected because some of the indicators need to be activated in order to conduct successful segmentation of the musical flow, which indicates to questions related to the methodology and practice of music analysis and formal analysis as disciplines taught within higher music education.

An interesting finding indicates that there are significant differences in using musical components in the segmentation when it comes to segmentation levels ($\chi^2(86) = 29.71, p < .001$). In Figure 1, we observe that students performed segmentation at the level of motive by activating the signal of beginning (3.4%) and caesura (3.4%), to a minimum they perceived agogic (1.1%), while they mostly implemented segmentation at this level by activating articulation (18.4%). On the other hand, segmentation at the sentence level was performed by activating the signal of beginning (5.7%), caesura (10.3%) and articulation (11.5%) to a lesser extent, agogic (20.7%) to a greater extent, and it is observed that the component is the signal of end (21.8%) largely influenced to the segmentation at this level. However, it is observed that segmentation of the musical flow at the period/section level comprises two components that have most in-

fluenced the segmentation at the motive and sentence levels, namely the end signal and the articulation. The end signal (1.1%) had less influence on segmentation at the period/section level, while articulation (2.3%) had a greater share in this.

Nevertheless, the activity of agogic and end signal are most pronounced at the sentence level. Articulation, which is dominant in segmentation at the level of motive, is similarly represented. On the other hand, a significant difference is observed in the use of articulation in the segmentation at the period/section level. Its activity is extremely low compared to articulation activity at the level of motive and compared to end signal and articulation at the sentence level. Although a partial coincidence in the selection of components at different levels is observed, their activity varies. At the motive level, as well as at the sentence level, the activity of certain components is very high (articulation, agogic, end signal), while at the period/section level it is very low (articulation, end signal).

2. Correlation of academic achievement and segmentation indicators. Considering the correlations between the average grades in the Analysis of Musical Forms (AMF) and in the Analysis of Musical Work (AMW) with indicators for making decisions in the segmentation, it is observed that the average grade of students with theoretical directions is correlated with segmentation based on their knowledge of the musical piece through listening ($r = .33, p = .002$), while the average grade of performers is correlated with segmentation based on the score ($r = .38, p < .001$). This result leads to the conclusion that the students with theoretical directions were familiar with the musical piece even before the research, while the performers segmented the musical flow based on the score and were not familiar with the musical piece before the research.

Interestingly, students with theoretical directions did not make a decision about segmentation based on the acquired knowledge they would apply in the new situation, but rather on knowing the pieces through listening. In con-

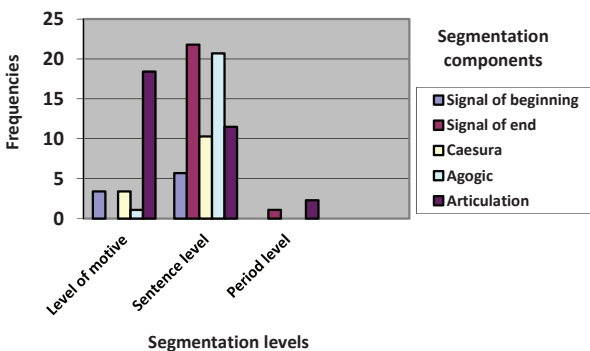


Figure 1. The relationship between levels and musical components in segmentation (crosstabs).

trast, performers were more likely to make decisions about segmentation based on the score, which indicates the action of experience as a facilitation factor in spotting “chunks” and in the segmentation (Leman, Sloboda, & Woody, 2012: 133). These facts suggest that the practice of musical performance is a more significant factor than learning theoretical concepts since they have no application in new tasks. Consequently, education does not have the result that would be expected. It is this result that points us to certain limitations that the curriculum of academic music education has.

The second result shows a correlation between the self-assessment of segmentation performance and the segmentation indicator based on the acquired knowledge of musical form ($r = .31, p < .01$). This correlation shows the expected awareness of music students about personal knowledge in the segmentation of musical flow.

In addition to this result, a correlation between self-assessment of segmentation performance and the segmentation indicators based on the articulation is shown ($r = .34, p = .003$). The link between them suggests that higher self-efficacy has its foothold in the strategy of using articulation cues as a basis for decisions in the segmentation.

3. The emotional experience of the students in the segmentation of a musical piece.

The intensity of 12 emotions in response to listening to a piece (happiness, joy, arousal, carelessness, pleasure, relaxation, depression, sadness, monotony, suffering, anger, fear (Hunter & Schellenberg, 2010: 135) is related to the parameters of segmentation. The results indicate a significant association between the emotion of happiness and segmentation based on acquired knowledge of musical form ($r = .29, p = .006$). The fact that emotions are already built in the experience of instrumental performance is shown by the existence of association between arousal and the segmentation of musical flow ($r = .25, p = .019$). Consistent with these results, an association was observed between the emotion of pleasure and the segmentation of the musical flow based on familiarity with the musical piece through listening ($r = .31, p = .003$). Knowing the piece causes the pleasure of listening again.

The results regarding the association between student's emotional response and the number of segments are not statistically significant. Also, no significant correlation was shown between any emotional response to a piece of music and some of its musical components. It can also be understood that segmentation is primarily a cognitive activity, which involves analytical processes and incorporates knowledge and knowledge of existing models by which segmentation is performed. Also, the results do not indicate a statistically significant correlation between the emotional experience of music students and their assessment of the duration of a musical piece. This indicates the absence of an emotional aspect in assessing the duration of a piece, that is, indicating the predominance of cognitive processes in that task.

Conclusions

The research was conducted to establish the degree of mastery of analysis/segmentation of a piece of music by music students while listening to Claude Debussy's impressionistic piece *Arabesque No. 1* (Harris, 2017). The place of cognitive processes and operations, as well as the emotions experienced during segmentation of the musical flow, were examined. In addition, some measures of academic musical achievement and their correlation with indicators and segmentation components were examined. The results indicate that students from the Faculty of Music successfully completed the task of estimating the duration of a piece because their assessment is closer to its real duration. Their success is reflected in the results which show that they segmented the musical flow most at the sentence level, to a lesser extent at the motive level, as well as at the macro level – at the periods and sections level. However, they are less present, as the results indicate that it is obvious that segmentation at the syntactic level is prevalent. By looking at the different musical components that students used to perform the segmentation of the musical flow, it could be seen that the majority of respondents conducted segmentation based on articulation and on the end signal, indicating that they included prior

knowledge, as well as agogic. The smallest number segmented the musical flow based on caesura. This result is important because, without musical components as guidance, segmentation at any level would not be possible. By calculating the correlation between the segmentation levels and components in the segmentation, a result is obtained showing that music students, when segmenting the musical flow at different levels, include the musical components as guidance, which is expected because these two variables are interrelated in practice. This is supported by the correlation between the components on the basis of which the respondents segmented and the number of segments they received after segmentation.

The results obtained by looking at the indicators for making decision about segmentation show that the most students segmented intuitively, and to a lesser extent on the basis of the score and the acquired knowledge of musical form, which was contrary to the initial expectations since the assumption was that the acquired knowledge of musical form would be applied in segmentation. However, the results show that the smallest number of respondents segmented on the basis of playing the pieces, which means that very few of them were familiar with the chosen musical example in practice.

On the other hand, by noting the correlations between the indicators themselves, a correlation could be observed between segmentation based on the score and segmentation based on the acquired knowledge of musical form, since the assumption that the acquired knowledge is activated during the segmentation is confirmed, that is, music students are trained to follow the score. Based on their acquired knowledge, they are also able to read graphic symbols from the score because of the connection between segmentation based on acquired knowledge of musical form and segmentation based on articulation. However, the correlation between the number of segments in segmentation with the indicators for making a decision in the segmentation does not prove statistically significant, which is not expected because some of the indicators need to be activated in order to carry out segmentation of the musical flow.

Considering the average grades of students with theoretical directions (Analysis of Musical Forms) and performers (Analysis of Musical Work) is the same. Correlation between average grades in Analysis of Musical Forms (AMF) and Analysis of Musical Work (AMW) with indicators for making decision in the segmentation indicates that the average grade of students with theoretical directions is related to the segmentation based on their knowledge of the musical piece through listening, while the average grade of performers correlates with the segmentation based on the score. Accordingly, it concludes that students with theoretical directions were familiar with the musical piece even before the research, while the segmentation from the performers were based on the knowledge of score and were not familiar with it before the research. These facts suggest that the practice of musical performance is a more significant factor than learning theoretical concepts since they have no application in new tasks, that is, education does not have the expected result.

The correlation established between self-assessment of segmentation and segmentation based on the acquired knowledge of musical form shows the expected awareness of music students about personal knowledge in conducting segmentation. In addition, there is a correlation between self-assessment in segmentation and articulation-based segmentation, suggesting that articulation-based segmentation is also good analogous to self-assessment in segmentation and vice versa. Accordingly, the respondents, in their self-assessment, carried out the segmentation mostly with the help of articulation.

Considering the emotional response of the students, it has been shown that the carelessness, pleasure, and relaxation of the emotions they chose when listening to the musical piece are in accordance with the character of the piece. On the other hand, all emotions in the opposite spectrum are consistently low, with sadness, monotony and suffering somewhat more pronounced, and in keeping with the melancholy nature of the piece. By conducting factor analysis, a clearer picture of the response to the musical piece was obtained. The first factor

is saturated with emotions of happiness, joy and excitement, while on the contrary, factor two is overwhelmingly saturated with feelings of depression and sadness, but also of anger and fear. Although it is noted that the second factor has a lower degree of saturation, there is clearly present an emotional reaction in the “negative” spectrum of emotions.

Nevertheless, the results indicate that there is no correlation between emotional response and segmentation of the musical flow and that no connection is made between the emotional experience of music students and their assessment of the duration of a musical piece. However, by looking at the correlations between student’s emotional responses during segmentation, it is concluded that music students are happy while using prior knowledge in the segmentation, they show excitement because they recognize the musical piece they played and are happy as soon as they recognize it during listening. However, they do not use emotions while they segment the musical flow, which is not expected and is not consistent with the previously interpreted results, as the emotional aspect in students is lacking in their assessment of the duration of the piece.

It can be concluded that the students were successful in estimating the duration of the piece, as they also successfully conducted segmentation at the sentence level by incorporating musical components. The practice of musical performance is a more significant factor than learning theoretical concepts, which is why performers were better off compared to students with theoretical directions. Their self-assessment of their success in the segmentation of the musical flow showed that they were good at its realization, while the emotional response of the students was also consistent with the character of the piece, which is why they proved successful in this aspect as well. The results obtained are important for understanding the issues of this research and raise many questions that could serve as a basis for new empirical researches.

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Music and Meaning

Psychological Research and Philosophical Debates on Musical Meaning

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Abstract

The question of meaning in music has been discussed by numerous philosophers of music. On one end of the philosophical spectrum, the meaning in music is understood as “specifically musical” meaning, i.e. the meaning exhausted by the musical ideas. The other end of the spectrum is occupied by the view that the meaning in music is emotional, consisting of the expression or representation of emotions by music, i.e. that the meaning in music is emotional meaning. The paper will demonstrate that the results of psychological research support a more complex view, which acknowledges different types of meaning. The main aim of the paper is to examine the contribution of experimental psychological research for the philosophical debates on musical meaning. Certain studies of behavioral and neurological reactions to musical stimuli have revealed interesting relationships between the processing of syntax, semantics, and emotion in music. After presenting three main philosophical views on musical meaning, the paper discusses the results and implications of three experimental psychological studies, and their relevance for the philosophical views.

It is argued in the paper that the experimental results enrich the classical philosophical debate on meaning in music. The original contribution of the paper consists in suggesting a way to connect the philosophical debates on musical meaning with the experimental psychological research. The implications of the paper will reveal higher complexity of the issue of musical meaning than is implicitly supposed in the theoretical debates. The second important implication is the suggestion of a way in which philosophical questions concerning music can be approached with the help of experimental psychology in future research.

Introduction

The motivation for this paper is mostly methodological. I am interested in interdisciplinarity, especially in the benefits of combining

methods of different disciplines, in this case, the methods of philosophical analysis and experiments in psychology.

The majority of discussions in philosophy rely mostly on arguments based on non-empirical reasons, and these are commonly *a priori* or at least highly speculative reasons. On the other hand, the experimental literature in psychology is growing exponentially, presenting an abundance of behavioral studies, neuroimaging studies, and studies on other physiological responses to music.

This paper thus aims to readdress the same old philosophical problems with the help of new information gathered from psychological research. I will argue that philosophers and humanities scholars, in general, should implement both the results and the methods of the sciences, along with their own methods. This defines two main aims of my research. The first aim is to interpret the experimental results in the philosophical context, and the second aim is to analyze whether such experimental work can provide valuable insights for philosophical discussions or not.

In philosophical discussions on musical meaning, the question most commonly asked by the philosophers can be formulated as “What does music communicate?” or “What kind of meaning arises from music?” Philosophers of music were mostly interested in learning whether the meaning in music is specifically musical, emotional, or some other type of meaning. The answers to this question can be very roughly summarized into three broadly defined views, where the first two emphasize one specific type of meaning: emotional meaning, and specifically musical meaning. The third, pluralistic view

acknowledges different types of musical meaning and offers a more sophisticated and complex account of the aspects of meaning in music.

Philosophical Views on Meaning

Meaning in Music is Emotional

Since Antiquity, most philosophers have believed that the value of music is connected to human emotions. Consequently, the meaning and proper understanding of music were tied to the emotions as well, be it emotions expressed in the music, or evoked in the listeners. I will call this broad approach to musical value and meaning “the expressionist view”.

These authors relied on the observation that music has the power to evoke various emotions in its listeners, and that, in turn, these emotions are able to shape human morality and character (Aristotle, trans. 1905, 1340a–b; Plato, trans. 1943, 398d–99b).

The value of music is thus defined primarily by its moral effect on the listeners by means of evoking emotions. Without such a beneficial moral effect, the beauty or pleasure found in music is considered insignificant (Tatarkiewicz, 1980: 23–25). This is connected to the long-enduring belief that there are correspondences between the domain of emotions and the domain of music, in the sense that particular musical elements, such as scales, chords, intervals, etc., correspond to particular emotions and moods (Koch, 1787; Sulzer, 1771–74).

This long tradition of thinking about music within the context of human emotional experiences reflected on the views on musical meaning. These views do not, however, constitute proper theories of meaning in music. They are, instead, a compound of beliefs about the emotional and moral effects of music, connected to the assumed correspondences between musical elements and particular emotions. These views do not attempt to present a detailed analysis of the meaning of music.

Another type of expressionist view on musical value and meaning treats music as the vehicle of expression of genuine subjective emotions, regardless of the moral effect. This originally Romanticist view is echoed in many

contemporary philosophical works on music, most distinctively formulated as claiming that many musical works should be interpreted as psychological dramas – as an expression of the emotional processes attributed either to the composer or to the “persona” – the implied author of the musical work, not necessarily coinciding with the composer (Levinson, 1990; Robinson, 2005). Robinson (2005) claims that the expressive structure of some musical compositions invites psychological interpretations, in the sense of understanding the composition as a development of psychological events in time, and in order for this sequence of events to form an organic whole, she postulates the persona, a quasi-person to whom we attribute all these psychological events.

Levinson (1990) makes an additional claim that music can even express cognitively complex emotions, even though it cannot convey the conceptual content of emotions (or conceptual content in general). This is possible through conveying other aspects of emotions, such as dynamics, through which music can lead an experienced listener to regularly associate a particular emotion as a response to the particular composition or passage.

Within the group of views that fall under the expressionist view, there are differences in details of explanation and motivation. However, what they have in common is that they view musical meaning in terms of the emotions the music represents, expresses, or evokes in its listeners. In other words, they answer the question “what music means” by referring to the emotions associated with the music.

Meaning in Music is Specifically Musical

A different approach to musical meaning disregards the emotions expressed or represented by the music, as well as the emotions felt by the listeners in response to music. The proponents of this approach define both the value and meaning of music independently of the emotions, by placing them in the music itself and its structural properties. This constitutes the formalistic approach to music (Hanslick, 1854: 3–7, 31–35). The formalists claim that it is not even within the power of music to represent

emotions. Since emotions can be differentiated from one another by their conceptual content, constituted by the conceptions and judgments associated with the particular emotion, and since pure instrumental music cannot represent concepts, for they are “not within the scope of music,” the formalists conclude that music is not able to represent emotions (Hanslick, 1854: 9; Srećković, 2014: 117–118).

Instead of searching for musical meaning in the emotions associated with the music, the formalists focus on the musical form, in tonal structures and tonal relationships, and believe that proper understanding of musical meaning requires focusing on musical form rather than external associations. Hanslick (1854) writes about the sense and logic in music, which being uniquely musical sense and logic. The trained listener, well acquainted with musical logic quickly distinguishes between genuine musical thoughts and ‘empty phrases’ (Hanslick, 1854: 30). The ideas expressed by musical works are, according to Hanslick (1854), uniquely musical, or tonal ideas, and not ideas concerning some non-musical content which are then translated into tones (p. 32). Additionally, musical ideas are “an end in itself”, rather than a vehicle to represent extra-musical ideas (Hanslick, 1854: 28). Hanslick (1854) seems to believe that these ideas consist of constructing tonal structures, skillfully manipulating the relationships between tones, chords, smaller and larger structures, referring to other musical ideas – through repetitions, variations, elaboration, and other techniques (p. 33).

The main formalistic claim is that the content of music is the form of music itself: “Music consists of tonal sequences, tonal forms; these have no other content than themselves” (Hanslick, 1854: 78). The content does not concern extra-musical ideas translated into musical form. Content and form are not related by the relationship of translation or representation of one by the other. Instead, they have a relationship of elaboration. The content, consisting of tonal ideas is elaborated and refined until it reaches the final form (Hanslick, 1854: 35). The content, i.e. the meaning of music is thus inseparable from musical form. This is best illustrated

in Hanslick’s (1854) claim that “music speaks not merely by means of tones, it speaks only tones” (p. 78). In short, the musical structure is both what expresses the meaning in music, and what the music means. Finally, musical meaning is, according to the formalists, exhausted by the musical ideas.

Pluralistic View: Different Kinds of Meaning in Music

Instead of advocating the primacy or existence of just one kind of meaning, Meyer (1956) claimed that there can be different kinds of meaning arising from the same musical compositions or sequences simultaneously (p. 76). Meyer introduces several distinctions between different aspects of meaning in music. First, musical meaning can be designative in the cases when music designates or refers to the extra-musical world (Meyer, 1956: 33), or it can be “absolute” or non-designative in that the meaning of music remains entirely within the context of the musical work – in the musical processes themselves. Meyer (1956) accepts both types of meaning and calls the former, designative “extra-musical” meaning, and the latter “intramusical” meaning (pp. 2–3, 32–35).

The second distinction Meyer (1956) establishes is within the intramusical meaning, namely, that it can be both “intellectual” and “emotional” meaning. He also acknowledges both sides of the second distinction and accepts the existence of both intellectual meaning such as the specifically musical meaning postulated by the formalists, and emotional meaning, such as the one postulated in the expressionistic view.

Music listeners acquire the implicit knowledge of regularities in music through frequent exposure to a particular musical style. This shapes their expectations of the course of musical events. Musical expectations can be based on intellectualizing the formal musical relationships, giving rise to intellectual intramusical meaning, or it can be based on feeling the tension and relaxation, giving rise to emotional intramusical meaning (Meyer, 1956: 35). Both intramusical and extra-musical meanings are dependent upon learning as well.

Unlike the formalists and the expressionists, who emphasize only one kind and source of meaning, Meyer (1956) allows a multitude of aspects of meaning to arise out of the same musical structures.

Experimental Research on Meaning in Music

Finding of Specifically Musical Meaning

Steinbeis and Koelsch (2008) conducted an experiment in which they explored the electrophysiological reactions of the brain, measured by the EEG, to musical and linguistic stimuli. Their experiment focused on the reactions characteristic for neurological processing violations of syntax and semantics in language, and violations of harmonic expectations in musical sequences.

Procedure. The aim of the experiment was to explore whether the neurological reactions characteristic for processing the violations of harmonic expectations are related to the processing of meaning in music. Musical stimuli used in the experiment consisted of short, five-chord cadence-like sequences. It was not associated with titles, texts, or other extra-musical signs which would prompt the listeners to engage in extra-musical interpretation of the sequences. The listeners were thus implicitly directed to focus solely on the musical structure, especially on the tension-resolution patterns in the sequences (Steinbeis & Koelsch, 2008: 1169–70).

Musical sequences were composed so that they contain the common Western music harmonic progressions, starting with the tonic chord, and proceeding in a way which creates a high expectation of hearing the tonic chord again at the end of the sequence. The sequences were composed in two variations, either ending with the tonic chord (the expected condition), or with a Neapolitan chord (the unexpected condition) (Steinbeis & Koelsch, 2008: 1170).

The listeners were simultaneously presented with a linguistic sentence and a sequence of musical chords. Steinbeis and Koelsch (2008) explored the interference between the processing of linguistic violations and of musical expectancy violations (p. 1170).

Results. The results of the EEG showed significant interferences between the neurological reactions to the linguistic and musical violations. More specifically, the pattern of the interference gives evidence of an interaction between the processing of the harmonic structure and the processing of the *semantic* violation of linguistic sentences. In short, this suggests that paying attention to the structure in music leads to semantic processing. This points out the existence of a relationship between the structural aspect of music and the semantic aspect of language. In other words, the listeners seem to perceive meaning in music through the features of its structure.

Implications. These results suggest that even the structural properties of music can be processed as meaningful by the listening subjects. Additionally, they suggest that musical form is able to convey meaning to the listeners, even without referring to, or associating the listeners with extra-musical events.

Thus meaning and understanding of music are significantly connected to the structural properties of music, and the listeners make sense of the musical input by paying attention to the structure of music.

Steinbeis and Koelsch (2008) gathered results which are relevant for the formalistic claim that meaning can be found in musical structure alone, and for the corresponding claim about intramusical intellectual meaning in Meyer's (1956) pluralistic account.

Since the violations were designed to break the expectations common for the Western music style, the results of this experiment support Meyer's (1956) claim that meaning in music can arise out of the familiarity of the listeners with the regularities in music, implicitly acquired through frequent exposure to the music of a particular style.

By showing that musical structures themselves are perceived as meaningful by the listeners, these results also support the possibility of specifically musical meaning postulated by the formalists.

Emotional Meaning in Music

Another experiment provided evidence in support of another possibility in the discussions about musical meaning. Steinbeis, Koelsch and Sloboda (2006) explored the role of the structural features of music and musical expectations in evoking emotional responses in the listeners. They hypothesized that, since expectations, in general, are important in the emergence of emotional processes, leading the subjects to feelings of satisfaction, disappointment, surprise, etc., the changes in the degree of (un)expectedness in the harmonic sequence should have an impact on the emotional responses of the listeners (Steinbeis et al., 2006: 1380).

Procedure. The aim of the experiment was to test whether there is a direct link between musical unexpectedness and emotional responses (Steinbeis et al., 2006: 1380). The participants were presented with musical excerpts divided into three groups. Each excerpt had three variations, ranging from the expected version (ending with the tonic chord) to the very unexpected version (ending with a Neapolitan chord instead of tonic). The participants listened to the excerpts and rated the strength of their emotional response to the music. Simultaneously, their physiological reactions (associated with emotional experience in general) were measured (Steinbeis et al., 2006: 1383).

Results. The results of the participants' ratings showed a correlation between the strength of the emotional response (rated at the end of each excerpt) and the degree of harmonic unexpectedness. The correlation was gradual, in the sense that there were gradual differences in ratings for all three groups of variations (expected, unexpected, very unexpected) (Steinbeis et al., 2006: 1390).

The results of the physiological measurements showed a gradual correlation between the physiological measures associated with the *intensity* of emotional responses and the degree of harmonic unexpectedness. This means that the levels of the physiological indicators of the intensity of the emotional response were higher for the unexpected variations than for the expected ones, and the highest for the very unexpected variations (p. 1386).

Implications. The results provide evidence in support of the role of the musical structure and musical expectations in the emotional experience of the listeners. These results, thus, establish the relationship the authors hoped for, namely, the relationship between harmonic expectancies and emotional responses, which was missing in the empirical literature on music and the emotions.

These results can be taken to support Meyer's (1956) claim that it is possible for the properties of the musical structure itself to have emotional meaning for the listeners, even without referencing emotions with extra-musical signs (such as titles, etc.), or the (also extra-musical) correspondences between particular musical elements and particular emotions. In other words, this study supports Meyer's notion of intramusical emotional meaning, since it is shown that music can have an emotional impact solely through the fulfillment or suspension of specifically musical expectations.

Conceptual Meaning in Music

The third experiment relevant to the discussions on meaning in music was conducted by Koelsch and colleagues (2004). This experiment leads to novel insights regarding the scope of musical meaning. Unlike the first two experiments I presented, the results of this experiment did not support the existence of either musical or emotional meaning in music but instead introduced a new possibility of musical meaning, namely that musical structure can convey conceptual meaning, independently of extra-musical signals such as titles, texts or a program.

It was believed by the proponents of both formalism and the expressionism that music cannot convey conceptual meaning. Furthermore, this kind of meaning was not mentioned in the more permissive pluralistic account as well. Thus the following experiment is more interesting than the previously presented ones, in providing evidence for the meaningful relationship between musical structures and concepts denied by the philosophers.

Procedure. The experiment relied on a technique commonly used in experimental psychol-

ogy called “priming”, which consists of exposing of the subject to a stimulus (the “prime”) which affects the speed of the subject’s processing of the subsequent stimulus (the “target”). Positive priming is priming that speeds up the processing of the target stimulus. This effect on the processing speed is called the “priming effect” (Reisberg, 2007).

The priming effect can be based on different kinds of relationship between the prime and the target stimulus. In some cases, there can be a *semantic* relationship between the stimuli. In that case, the processing of the target input is facilitated by the preceding input if the two inputs are semantically related. This effect can be observed in the behavioral reactions, by measuring the speed of the reactions of the subjects, e.g. how fast they perform tasks related to the target stimuli. The same effect can also be observed in their physiological reactions. If the EEG measurements are conducted during the priming experiments, they show a specific change in the electrophysiological activity of the brain.

This experiment attempted to establish the existence of a semantic relationship between musical sequences and words, by testing the occurrence of the semantic priming effect between them (Koelsch et al., 2004: 302). The participants were asked to judge the semantic relatedness between the musical and the linguistic stimuli, and simultaneously their neurological reactions were being recorded.

Results. The results showed that the semantic priming effect occurred for both linguistic and musical conditions. The participants judged semantic relatedness very similarly in the sentence-word priming pairs as in the musical excerpt-word priming pairs, in both conditions as predicted by the researchers. The physiological measurements complemented the subjective judgment of the participants. Changes in brain activity were congruent with the perception of semantic relations and did not differ between the linguistic and musical conditions. This gives evidence of the classical semantic priming effect that is already known to exist for the linguistic case but was never tested for the relationship between instrumental music and words. These findings suggest that music can convey con-

siderably more semantic information than assumed so far.

Implications. The results imply that musically untrained subjects who are presented with unfamiliar musical passages form similar associations between the passages and particular words. This suggests that the subjects found similar semantic content in the musical excerpts and that at least some degree of conceptual meaning can be found in music, embedded within the musical form itself.

The implications of this experiment undermine both formalistic and expressionistic belief that music is unable to convey conceptual meaning. Meyer’s (1956) pluralistic view leaves more room for such a possibility, but it is unclear whether Meyer himself would allow it.

Conclusion

At first sight, the philosophical views on meaning in music do not seem relatable to the neurological or behavioral experiments in general. It was not clear how any such experiments might prove relevant for the discussions on musical meaning. However, I have shown that the results of the presented experiments do provide valuable insights into the philosophical discussions. Taken together, they show that musical meaning can be of various kinds, even of the kind not considered by the philosophers. Different kinds of meanings do not necessarily exclude each other: music may be able to convey several levels of meaning solely by its structure, and the different meanings may also interact and interfere with each other.

In addition, this paper shows that interdisciplinary research is relevant for the philosophical debates on musical meaning, by introducing facts and arguments otherwise not available from the armchair philosophical approach.

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The Sign Upgrading of Archetypes in the Music of Postmodernism

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Abstract

The paper starts from the thesis that the pronounced narrativity in postmodernism, unlike modernism, is spurred by non-interference of the symbols in the overall order of the work. They are unambiguously *decentralized* in relation to the context from which they were taken out. The consideration of incessant simultaneous and successive relationships between the symbols (what James Jacob Liszka calls *trans-valuation*) will lead to the identification of primary archetypal patterns that are part of the deep dynamic structure of the musical work. In the composition the *Tree of Life* by Ivana Stefanović the very form is being branched, that is, the repetition of the archetypal performance of life growing up occurs. In the composition *Soneti* by Svetlana Savić, there is a string of symbols referring to a romantic waltz, a pastoral treatment in French music of the twentieth century, or the sonnet texts are reduced to the pronunciation of one word to which the significance is attached and, finally, by concrete sounds are marked phenomena from nature. In this collage, the symbols do not interfere neither in the vertical nor in the horizontal order, so they appear to have been brought to the level of archetypes, that is, they are “liberated” from the burden of meaning to such an extent to create a constellation in which questions *when, where?* and *why?* lose their sense. Finally, at the piano concert *It?* by Ivan Brkljačić the symbols are on the very surface, and so, like on the screen, the flow of universal model-symbols can be followed, which in such a constellation can be viewed as archetypes. The goal of the paper is to apply some strategies, incorporated by the basic *decentralization* strategy, so as to present the image taken from the original environment of the original style – the image brought to the level of universality.

Introduction

The central part of my research in the field of music theory is related to intertextual relations and inter-stylistic connections in the music of the first half of the 20th century. Literary theory, in particular, addresses these issues, and

so one of the impetuses for my doctoral thesis, *Resemantization of Tonality in the first half of the XX century*, came from Harold Bloom’s anxiety of influence theory. Bloom does not view the relationships between literary works through historical continuity. He believes that influences are not merely the transmission of ideas and images from generation to generation: “in conjunction with the psychoanalytic postulates of Freud’s theory, Bloom’s theoretical premise assumes that when receiving influence the younger poet creates anxiety over the elder, anxiety that is expressed through feeling of loss of the personal” (Teparić, 2020: 105). This includes creativity through which it is possible to express those deep, timeless influences that we might call archetypal. Thus, Bloom also affirms that the semantic upgrade is, in fact, the foundation of all artistic creation:

“Poetic influence – when it involves two strong, authentic poets – always proceeds by misreading the prior poet, an act of creative correction that is actually and necessarily a misinterpretation” (Bloom, 1997: 30).

In an interview in which he discusses this theory, Bloom avoids mentioning the word “archetype” which is understandable because he conducted his research on the postulates of Freud’s psychoanalytic theory. Nonetheless, he states: “The oldest in us, as Emerson would say, is what we feel as literary intellectuals, as intense readers or writers, or perhaps simply as intense lovers in the erotic sense, what people like us feel is not part of the created world but in a certain way precedes creation, and can survive our death, it is certainly that element necessary for writing and interpreting poems” (Herman-Sekulić, 1992: 71). Let us move on to those authors who talk quite openly about the archetype. Here, Jung’s idea of the collective unconscious is

inevitable, a domain from which the archetypes, according to him, originate. General knowledge of Jung's research leads us to believe that archetype represents a mental activity. Archetypal performances in art, as well as in music, would also represent their symbolic expression. According to Jung, the archetype is constantly changing, upgrading, while still retaining its primary, universal meaning: "The archetype is essentially an unconscious content that is altered by becoming conscious and by being perceived, and it takes its color from the individual consciousness in which it happens to appear" (Jung, 1959/1981: 5). Further, according to Jung, the archetype is a primordial type, which refers to the unconscious contents that are especially represented in the world of myth and fairy tale in which the symbols are employed. In this regard, in an extensive preface to Jung's book *Red Book (Liber Novus)*, Sonu Shamdasani writes:

"Symbols, he maintained, stemmed from the unconscious, and the creation of symbols was the most important function of the unconscious. While the compensatory function of the unconscious was always present, the symbol-creating function was present only when we were willing to recognize it. Here, we see him continuing to eschew viewing his productions as art. It was not art but symbols that were of paramount importance here" (Jung, 2009: 210).

It is logical, then, why in the case of archetypes, we talk about symbols, although in all other cases I call musical patterns the signs, for which I would need much more space to explain. Like Jung, who argued that the archetype represents the image of God in man, for Northrop Frye this term is also all-pervading and he equates it to a symbol. His definition of archetype reads: "A symbol, usually an image, which recurs often enough in literature to be recognizable as an element of one's literary experience as a whole" (Frye, 1973: 365). For all of the above mentioned, it is very important for symbols to have the possibility of unlimited transmission, which was also observed written about by Charles Sanders Pierce, from a completely different spiritual environment and from the perspective of pragmatism. Important is also his claim about symbols that have the

capacity to "insert" all kinds of meanings and which, in this way, become totals, the elements of depth structure: "Nevertheless, they have a great power of which the degenerate signs are quite destitute. They alone express laws. Nor are they limited to this theoretical use. They serve to bring about reasonableness and law" (Pierce, 1976: 243). Like Jung, who noted that the hard archetype represented the image of God in man, this term is also all-pervading for Frye, and he equates it with a symbol. Thus, Frye's definition of archetype reads: "A symbol, usually an image, which recurs often enough in literature to be recognizable as an element of one's literary experience as a whole" (Frye, 1973: 365).

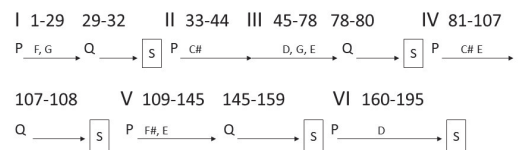
Another important point regarding the semantic upgrade is the idea of exemplification put forward by American philosopher Nelson Goodman. The idea of exemplification should be relevant to any form of interpretation of symbolization. Goodman states, "an extremely important but often overlooked form of *non denotational* reference is exemplification: reference by a sample to a feature of the sample" (Goodman, 1984: 59). Thus, every inter-textual relationship, including the archi-textual one, can be explained through the phenomenon of exemplification. In the case of "influences", each symbol exemplifies the properties of the image to which it refers, those essential features that are sufficient to represent the true image. In archi-textual relations, the connection with the concrete image is lost. The image is actually a primordial image. We shall assume that the musical narrative, as a space in which the interaction of musical elements takes place, is a framework in which musical archetypes exist. The most basic level of musical narrative speaks of a limited number of organizational patterns, that is, narrative archetypes. Any recognition of a narrative involves an awareness of the existence of multiple levels of meaning. For this reason, James Jacob Liszka proposes the term *transvaluation*: "In its most general form, *transvaluation* is a rule-like semiosis that evaluates the perceived, imagined or conceived markedness and rank relations of a referent as delimited by the rank and markedness relations of the system of its signs and the teleology of the sign user" (Liszka,

1989: 70). Further within the musical narrative, a recognition that depends on the competence of the culturally informed listener is possible. It is for this fact that Byron Almen defines the narrative as follows: “a *narrative is essentially an act of transvaluation*” (Almen, 2017: 51). Therefore, the analysis of musical archetypes would be based on the following questions (1) what do they mean for the musical narrative separately and within the context; (2) how archetypes interact with other musical elements within musical time and space; (3) which are specific traits of meaningfully upgraded archetypes within a specific historical epoch, postmodernism. Below, three examples of music in postmodernism will be presented in which the archetype of pastoral is treated in a variety of ways. They were chosen because they possess the main three characteristics of what the German literary theorist Andreas Huyssen calls postmodern nostalgia: “But what distinguishes this nostalgia from the ‘real thing’, and what ultimately makes it anti-modernist, is its loss of irony, reflexivity and self-doubt, its cheerful abandonment of a critical consciousness, its ostentatious self-confidence and the *mise-en-scène* of its conviction . . .” (Huyssen, 1984: 7).

The Tree of Life by Ivana Stefanović

The composition *The Tree of Life* (1997) by Ivana Stefanovic for string orchestra is an example of how a narrative archetype can be so deeply embedded in a structure that even a graphic representation of a form points to it. In one of my earlier works, I stated that the movement “from birth to transcendence” in this composition is filled with symbols that indicate the “revival” of a musical piece. “The metaphorical ‘treelike form’ consists of sections that form a part of an inseparable whole, but at the same time, they freely grow towards different sides, and each of the individual parts of the form could be called the leaf. It is quite obvious that meaning in the context of composition by Stefanović is expressed through simultaneous and successful relationships between parts of the form, thus creating a kind of narrative plane within the temporal structure” (Teparić,

2018: 74). The process of transvaluation within the musical narrative can also be recorded at a lower level: we could talk about the constant “flipping through” the motifs, their growth, and decline. The transvaluation of symbols-musical motifs—builds a whole of logically arranged “life” elements. Therefore, we would not be able to talk about layered contexts as it would be in postmodern collages. We could not even classify this composition as a neoclassical homage, although there are elements of stylistic imitations. Transcendence through movement causes a part of the attained spirit to be exemplified through artistic poetics. It is depicted here as a moving condition that freely ages and branches off and is an integral part of the pastoral archetype that seems to originate from the originally pronounced syntagma, “In the Beginning was the Word” (Teparić, 2018: 85).



Symbols:

P – prolongation Q – quandance

S – stop

Figure 1. Scheme of composition *The Tree of Life* by Ivana Stefanović.

Sonnets by Svetlana Savić

In the composition *Sonnets* for cello, piano, and electronics by Svetlana Savić, a different kind of establishment of the process of transvaluation and the setting of the narrative archetype occurs. The entire composition is a series of fragments of images that alternate in front of the listener as if in a dream. It could be said that the signifiers in this piece have a visual property. The expressive narrative of such a postmodern collage is fueled by the non-interference of symbols that are unambiguously *centralized* and which in their synergy do not lose any of their primary “archi” properties. The first movement of the composition called *La Douce Nuit* (*Silent Night*) composed in 2010 uses samples of a recording of a recitation of poems from Charles

Baudelaire's *Les Fleurs Du Mal*, interpreted by Eva Le Gallienne and Louis Jourdan. This movement could be characterized as an archetypal pastoral scene. Through the static image, characterized by the long sustained pedals, a collage of individual images is created, which in such an environment *centralize* the archi properties of the phenomena to which they refer. The individual words of the sonnet are reduced to sound properties, indicating the original meaning of the word *suono* (voice, sound). In the passage where the text reads, *Listen darling, let's go now, with a slight step the night is approaching*, the recorded sounds of the train, the swamp and the cello melody that brings the leap of the minor sixth upwards (*a-f*) exemplify the archetype of the pastoral. The minor sixth, as a romantic signifier of the sphere of the idyllic, layered on sounds from nature, as symbols act in such a way that they represent a direct penetration into the depth structure of the musical narrative of the Arcadian space.

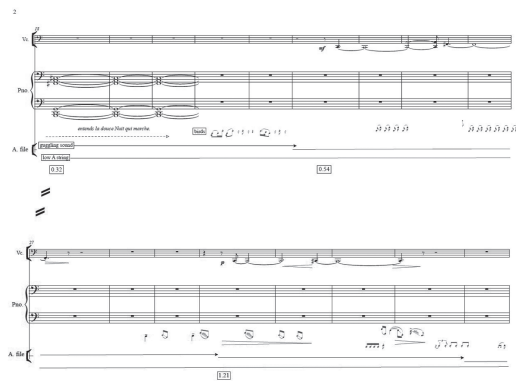


Figure 2. Excerpt from *Sonnets*, movement *La Douce Nuit* (mm. 18–34) by Svetlana Savić.

It by Ivan Brkljačić

A piano concerto *It* by Ivan Brkljačić (2000) brings a horizontal, temporal sequence of rhythmic à la Prokofiev's motifs. By trans-valuating symbols that exemplify incompatible jazz rhythms combined with those of heavy metal music, in rapid tempo and through a specific orchestration upgraded with two batteries of drum instruments, Brkljačić reaches deeply into the pastoral primordial image of the ritual.



Figure 3. Excerpt from piano concerto *It* (mm. 1–25) by Ivan Brkljačić.

Discussion

All three examples discussed above illustrate different ways to penetrate some of the archetypes. With Ivana Stefanović it is the phenomenon of life, both in superficially literal and in the deepest, archetypal sense. With Svetlana Savić, the pastoral is presented in the form of an image, while with Ivan Brkljačić it flows with their sequencing. The answers to the three questions I posed earlier are the archetype of pastoral in an environment of diverse stylistic references and indications, act as “stripped down”, that is, as a separate part of the overall meaning network. The strategy of their *decentralization* is completely different from the modernist *centralization*, which implies visible participation of the author in the process of meaning-building. The transvaluation of symbols indicates the creation of a deep structure, within which the emergence of stripped archetypes occurs, which ultimately exemplifies postmodernism. Artistic tools are

brought to the level of generality, so it could be said that these works still belong in some way to the modernist, avant-garde affinity. The idea of uniqueness, reflected in the kind of improvisational spirit of all three compositions, points to a performance in which the representation of archetypes is stripped down their expression. That is why they act as archi and that is precisely why this way of treating archetypes is characteristic of the art of the time we live in.

Conclusions

The theoretical postulate that discusses the semantic upgrading of archetypes in postmodernism starts from Jung's idea of the collective unconscious, the archetypes that he equates with the language of symbols. This brief outline starts from the following theoretical assumptions: (1) The semantic upgrade is linked to the entire artistic creation and does not necessarily take place in historical continuity; (2) There is a certain primordial image, a world of symbols, where archetypes exist that are universal in every historical time; (3) Symbols, as transferable elements, participate in the process of transvaluation, that is, in the process of creating a meaning constellation within a musical narrative that represents the exemplification of a particular archetype. Based on an analysis of examples from *The Tree of Life* compositions by Ivana Stefanovic for string orchestra, *Sonnets* for cello piano and electronics by Svetlana Savic and *It*, a piano concerto by Ivan Brkljačić, emerge the three different ways in which they treat the narrative archetype of pastoral work. The results that should indicate the features of the semantic archetype upgrade in the music of postmodernism are as follows: (1) Archetypes act as "stripped down"; (2) The depth structure of the musical narrative is such that they do not interfere with other references but act as a separate part of the overall meaning network.

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Model of Artistic Music Aesthetic Experience in Music Criticism Broadcasted on the Radio Belgrade 2 in 2017

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Abstract

This research focuses on identifying the features of aesthetic experience in the music criticism of artistic music concerts that were performed during 2017 in the “Kolarac Great Hall” as a representative institution of artistic music in Serbia. The identification is carried out through an analysis of 39 examples of music criticism that were broadcasted on the Radio Belgrade 2 in 2017 and published in collection *Muzika u odjecima kritike 2017 (Music in the echoes of criticism, Cvetković, 2018)*. The main contribution consists of the theoretical explication of the features of a particular aesthetic experience of music inherent to music criticisms, in the way of identifying the model of aesthetic experience, its stages, and types of statements through which each stage is mediated. Identification of the features of aesthetic experience and musical judgments in the music criticism is made in the form of ‘testing’ of the five-stage model of aesthetic experience that has been set up by Helmut Leder and co-authors (Leder, Belke, Oeberst, & Augustin, 2004). The ‘testing’ of the theoretical five-stage model of aesthetic experience of visual arts on the verbalized aesthetic experience of music reflects an endeavor to find a suitable theoretical model for discussing the features of music criticism as a very specific type of mediation of music that exists outside of the disciplinary established fields of sciences and philosophy of music. Therefore, this ‘test’ implies a potential research perspective and a methodological framework for a complex study of artistic music criticism history in a broader diachronic frame.

Research Object

I define the object of this research – the music criticism of artistic music – as a *verbal mediation* of music, which is expected to convey the experience of music and formulate an aesthetic judgment on the basis of an experience of a work of music. I define music criticism as the *mediator* of the experience of music because

there is a fundamental difference conditioned by the media of music and criticism – between the language of the work of music and the language of music criticism – in such a way that aesthetic judgments about music are determined by the system of language that mediates what is experienced by senses. In this process of verbally mediating the aesthetic experience of music, the critic’s knowledge of music has an important role. In other words, music criticism means not only an experience of music but also an expertise point of view. Music criticism mediates the work of music to a broader audience, whereby the valorization of music is based on the aesthetic experience and the expertise of the critic.

This research is aimed at identifying the characteristics of aesthetic experience and judgments in a selected sample of music criticism. The critiques of professional, artistic music concerts performed in 2017 at the most important institution of artistic music in Serbia – The Great Hall of the Ilija M. Kolarac Foundation are in the focus of research. The identification of the characteristics of aesthetic experience and judgments is conducted through the analysis of radio music criticism. A total of 39 critiques is analyzed, those which, after radio broadcasting, were selected by the competent editor of the publication *Music in echoes of criticism (Muzika u odjecima kritike 2017, Cvetković, 2018)*, and presented in the published, printed form as representative radio criticism of artistic music during 2017. Those are 6 critiques of the Belgrade Philharmonic Orchestra concerts; 9 critiques of solo instrument performance (violin, bassoon, violoncello, French horn, piano) with the Belgrade Philharmonic Orchestra; 4 critiques of solo instrument performance (piano, violin)

with the Radio Television Serbia Symphonic Orchestra; 1 critique of the Radio Television Serbia Symphonic Choir and Orchestra performance; 1 of the vocal singers performance with the Radio Television Serbia Symphonic Orchestra; 1 of the vocal singers performance with the Faculty of Music Symphonic Orchestra; 6 critiques of different chamber ensembles with solo instruments performances; 6 critiques of concerts for two instruments (piano, viola, flute, violin, accordion); 1 critique of choir music and 4 critiques of piano recitals. The repertoire of performed compositions ranges from Bach to minimalism and works by contemporary Serbian composers. All five authors of music criticism received their higher education degree in music theory, that is, musicology, at the Faculty of Music, University of Arts in Belgrade, which provided them with the necessary competences to engage in music criticism.

Research Question and Aim

Considering that the mediating function of music criticism conditions the corresponding expectations in relation to it – that it is based on the aesthetic experience and express competent value judgments about the work of music – the research questions here are: 1) is it possible to identify existence of the model of the aesthetic experience on which the judgments of work of music are based and 2) what are the characteristics of each individual stage of that model? The identification of the features of the aesthetic experience of music in music criticism is conducted as testing the existence of a five-stage model of aesthetic experience that is theoretically posed by Helmut Leder and co-authors (Leder, Belke, Oeberst, & Augustin, 2004) in selected examples of music criticism. Although this theoretical model describes the stages that characterize the aesthetic experience and judgments of contemporary visual art, the Leder and co-authors affirm it as a potential universal model of the aesthetic judgments of art. I identify the characteristics of the aesthetic experience in music criticism through the model of Leder and co-authors and describe how and in what way each of the stages of this model of aes-

thetic judgment is expressed in them. The aim is to determine whether in this selected sample of music criticisms the five-stages model of aesthetic judgment is recognized and to identify the types of linguistic statements that mediate each of these five stages. The contribution of this research is reflected in the presentation of the characteristics of a particular aesthetic experience of music, which is characteristic of music criticism, in the way of identifying models of aesthetic experience and stages of which this model consists.

Explanation of the Used Theoretical Model

The five-stage model of aesthetic experience combines cognitive understanding with emotional processing. “Aesthetic experience . . . consists of cognitive and emotional processes evoked by the aesthetic processing of an object” (Leder et al., 2004: 505). According to this model, aesthetic processing involves several stages of cognitive processing, which follow in sequence, whereby successful cognitive processing of the information underlying the aesthetic experience should produce a positive, self-rewarding experience of pleasantness. The five processing stages that characterize aesthetic experience and the formation of aesthetic judgments are as follows: 1) perceptual analysis, 2) implicit memory integration, 3) explicit classification, 4) cognitive mastering and 5) evaluation. The central thesis in the theoretical setting of this model is that the subjective sense of success – the evaluation stage – in the cognitive processing of a work of art results in positive aesthetic emotion and self-reward. The final evaluation stage is one that initiates and guides the previous stages of aesthetic experience in the direction of success and the sense of satisfaction that results from that success. A successful cognitive process leads to positive emotion in the final stage of self-evaluation of the entire cognitive process, while a failed cognitive process results in negative emotions.

According to the five-stage model of aesthetic experience, for the successful cognitive processing of a work of art as a sensory stimulus,

the level of knowledge of the subject is crucial, since the third and fourth stages – explicit classification and cognitive mastering – are more successful if they are based on expertise. An essential condition for successful cognitive processing – more precisely, for the stages of explicit classification and cognitive mastering – is information, that is, knowledge. “Expertise in art consists of information that supports cognitive processing” (Leder et al., 2004: 498). The higher the level of expertise, the stages of explicit classification and cognitive mastering are more successful, and the aesthetic satisfaction that results from a positive evaluation of the performance of cognitive processing is more intense. A successful process of cognitive mastering that is motivated by the success of cognitive mastering and by the satisfaction that results from that success ends in a double result: aesthetic judgment about the work of art and the positive aesthetic emotion that depends on the successful process of the aesthetic judgment. Thus, this theoretical model implies that the individual’s level of knowledge affected aesthetic appreciation. Consequently, music criticism – as a type of mediating the sensuously-based experience of music of subject with a high level of expertise in artistic music – should result in the formation of an aesthetic judgment that emerged from the *a priori* expectedly successful stage of cognitive mastering of the work of music, and from which self-rewarding aesthetic pleasures emerged.

Presentation of Findings

The Input of the Successful Aesthetic Experience

According to the model of Leder and co-authors (2004), a potentially successful aesthetic judgment requires the satisfaction of certain conditions that precede the very act of aesthetic experience. The first condition of the aesthetic experience is the work of art as an aesthetic stimulus. Thus, the concert events as a context in which a work of music appears as an aesthetic stimulus is a necessary condition for establishing a successful aesthetic judgment. The institution of a concert of artistic music also provides another state for an aesthetic experience

– a peaceful and safe environment in which aesthetic experience could be realized. The analyzed music critiques are written in relation to representative concert institution of artistic music in Serbia. No music critique contains statements that would suggest the existence of an *a priori* negative critic mood towards an aesthetic stimulus, which, according to Leder et al., is a factor that hinders a successful, self-rewarding aesthetic experience.

First Stage – Perceptual Analysis

In the theoretical definition of the first stage – the stage of perceptual analysis – Leder and co-authors (2004) identify the perceptive variables of the visual arts as features of the sensory stimulus that attract the viewer’s attention. These are variables of complexity, contrast, symmetry, order, grouping. In fact, these perceptual variables are the aesthetic preferences identified in empirical studies of the aesthetic experience of visual art up to now. Analysis of statements in music criticism has shown that it is possible to determine, in the same way, the existence of aesthetic preferences over music as an aesthetic stimulus. The perceptual variables of work of music that attracted the attention and are crucial to a successful process of aesthetic experience in music criticism are the individual components from which the musical flow is built, and on the basis of which the presence of particular aesthetic preferences is observed. The critic focuses his/her attention on the following perceptual variables in their interrelation: melodic, rhythmic and intonation precision; intonation uniformity of sound mass; dynamic uniformity of sound mass, dynamic plan of the work of music as a whole; color differentiation of certain orchestral groups or soloists within the sound mass; the agogic and dynamic relationship between orchestral parts or soloist and accompaniment; individual training; playing errors. In relation to each other, these own perceptual variables result in aesthetic preferences that are expressed as clarity, compactness, complexity and (micro and macro) contrasts of the aesthetic stimulus. The positive music criticism valorizations of a performed work of mu-

sic as an aesthetic stimulus are reciprocal to the experience of the aesthetic preferences stated. Precise and compact performance of a complex work of music in terms of the complexity of autonomous logic of music, a multitude of musical flow contrasts and technically demanding orchestration and instrumentation are factors for the positive valorization of the conductor's skills and the performance abilities of the musician.

Second Stage – Implicit Memory Integration

According to the Leder and co-authors (2004), the second stage of aesthetic judgment is most often unconscious and involves the implicit integration of current information from the first stage and the activation or actualization of previous aesthetic judgment in the current aesthetic experience. This implicit integration is mediated by memory, whereby preferential aesthetic information is grouped and differentiated based on three criteria: familiarity, prototypicality, and peak-shift. The analysis shows that the activation and actualization of past aesthetic experiences in music criticism are *intentional* and *explicit*. Comparison of the actual aesthetic stimulus with past aesthetic experiences is inherent in the aesthetic experience of artistic music in such a way that the critic compares the actual performance of a work of music with the accumulation of aesthetic experiences of other performances of the same work of music or the performing practice of a soloist or ensemble. There are three different patterns of comparison: 1) particular works of music are perceived through reference to a specific work of music as a representative example of a musical style and exemplary aesthetic stimulus with which the current aesthetic stimulus is compared; 2) particular works of music are perceived by identifying deviations from a specific work of music as a representative example of musical style and exemplary aesthetic stimulus with which the actual aesthetic stimulus are compared, where that deviation is also determined as a positive or negative value of the aesthetic stimulus; 3) certain aesthetic information attracts their attention in such a way that they are perceived as exaggerating or overemphasizing

a particular perceptual variable with a negative value connotation. Examples of second stage linguistic mediation: "It is difficult to appreciate a student orchestra that does not perform continuously and rarely has the opportunity to make a public appearance" (Cvetković, 2018: 36). "Performances of our orchestra are rarely below the standards set for many years back" (Cvetković, 2018: 24). "Although the nature of the instrument is such that even in solo performances, even the best hornists often make mistakes, it still stands that, at least on recordings, different, much more purely played versions of Schumann's rarely performed *Concerto* can be heard" (Cvetković, 2018: 23–24). "Most importantly, in Gabriel Feltz's interpretation, there was no deviation from the usual norms associated with this favorite composition by many conductors, probably because of the multitude of effects it abounds" (Cvetković, 2018: 66). "Pogorelic's interpretation of Mozart's *Fantasy in C minor* KV 475 indicated the deconstruction of some of the canons related not so much to the performance of Mozart himself, but to the connection of the tones in the melodic sequence in the narrower, and the harmonic phrases in the overall expression in a broad sense. In performing this work, the pianist seemed to devote a brief moment, let's say the smallest fraction of a second, to considering the individual characteristic of the tone with each touch of his fingers" (Cvetković, 2018: 85).

Third Stage – Explicit Classification

The third stage of aesthetic experience is about consciously verbalizing the aesthetic information from the previous two stages. At this stage, the aesthetic information from the last two stages is integrated into the verbalized explicit classifications. In the case of the visual arts, when it is not grounded in knowledge of the work of art, this stage comes down to the description of what is partly shown. When based on expertise, this stage is about verbalizing aesthetic information by expert classification according to the stylistic and poetic components of art. Leder and co-authors (2004) emphasize that a certain level of expertise is necessary for

the successful realization of this and the next stage of the aesthetic judgment, especially when it comes to works of abstract painting characterized by the absence of representation. If one assumes a high level of expertise of the subject engaged in music criticism, the question arises as to how aesthetic information in music criticism is verbalized? Is the aesthetic experience of music in music criticism mediated by predominantly expert language and terminology, or is it a very specific type of verbalized mediation? An analysis of music criticisms has shown that the verbalized mediation of the aesthetic experience of work of music is expressed in two ways:

1) as a descriptive mediation of music as **movement** and describing the changes that take place in music as a movement. “The real challenge for every conductor is to strike a balance between the expressiveness and the lawfulness of musical architecture, to allow music to develop smoothly and naturally, and yet not lose precision and a kind of steadiness in constant movement” (Cvetković, 2018: 78). The explicit classification of aesthetic information from the first two stages – the connection between individual musical parameters and the musical flow through which they are constructed – is derived through verbal descriptions that describe *what is heard* when listening to different movements of music. Various epithets are attributed to autonomous logic of music, as the movement of sound, to describe the characteristics of what is heard on the ‘surface’ of music, in the performance: airy, powerful, overstressed, triumphant, inspired, energetic, nervous, disorganized, rounded, sharp, ecstatic, furious.

2) the explicit classification of aesthetic information from the first two stages is also performed as mastering the entirety of the musical flow by referring to the **theory of drama**. The terms music flow and dramaturgical flow are almost synonymously used. In the same way that in the theory of drama theater performance is understood as a representation of literary drama in the theater scene, the performance of a work of music in music criticism is interpreted as a creative representation, that is, an interpretation of a musical score by performing. “Finding a distinctive language is a dream for every artist,

and interpreters have the ungrateful task of having to create their own creation as well as transferring what has already been created. Pogorelec is one of the few who possesses the power and integrity to reach the points of interpretation in which the personal and the composer merge into the original creation” (Cvetković, 2018: 87). A musical flow, as a dramaturgical flow, implies that it is described as a sequence of events in the movement of music, in a gradual or abrupt shift, with the obligatory unity of the whole of the dramaturgy to be achieved in the performance. Changes in the musical flow are seen as shifts in the dramaturgical flow, where changes are made in the treatment of the individual components that build the autonomous logic of music. The changes in the musical flow that most attract aesthetic attention and which are explicitly classified through verbalization are the *contrasts* of the micro and macro plan of the musical flow and the way to rich the musical flow *culmination*. “Frequent invoices and dynamic changes, as well as fragmentation of the structure, meant concentrated and gradual construction of the dramaturgy to its peak and back, like a kind of sound waves. Woodwind instruments often played virtuosic roles, string instruments, as carriers of the orchestra, subtly maintained the continuity of musical development, while brass instruments had melodic performances, but also contributed to the raising of character tension” (Cvetković, 2018: 74). “The dramaturgy of work is based on the shift of virtuoso passages with quasi-romantic edgy tunes. Except on several occasions, the passages sounded clear, while the broad melody lines were clearly highlighted with intense high tones” (Cvetković, 2018: 11). “Gabriel Feltz chose the right tempo and dynamic frames, drawing an excellent dramatic contrast between the character of the musical parts” (Cvetković, 2018: 15).

Fourth Stage – Cognitive Mastering

Cognitive mastering means the stage in which the aesthetic information collected in the previous stages are gathered, in a way that their successful bound up is conditioned by the level of expertise. Depending on the level of exper-

tise, cognitive mastering, as the final cognitive stage, can be manifested as expert or naive. An analysis of how cognitive mastering of the aesthetic experience is achieved in music criticism has revealed the existence of two important characteristics:

1) A mandatory bridge between the components of music that attract the attention and the verbal mediation of what the critic hears happening on the 'surface' of performed work of music is *musical analysis*. All those aspects that are aesthetically appealing are analyzed in such a way that the critic is the one who differentiates the essential aspects of the work of music and directs the future listener to what he or she should pay attention to when music is performed in order to experience it aesthetically. Particular emphasis is placed on explaining the logic of music flow in cases where it proves to be complex, which requires the analytical skill and expertise of critic to recognize and mediate these complex compositional strategies and performing requirements. "Damjan Jovicin's composition *Mathematical Dream* is the work of a talented composer of the younger generation. Within the broadest framework, it is constructed from repetitive rhythmic-melodic patterns that are not strictly conducted. The inventiveness of the composer is particularly reflected in the conceptualization of the vertical, to the details filled with the most varied flickering color combinations that a powerful apparatus such as a symphony orchestra can provide. Percussion instruments, whose potentials were very well utilized by the composer, gave a special quality to this unusually inventive work. Although the sound of the orchestra, led by Bojan Sudjic, reached a range that could have excited the listener, despite the conductor's control of the big phrases of the composition, instrumental lines were separated at the texture level, which was known to result in delays of one section after another" (Cvetković, 2018: 69).

2) The key elements of cognitive mastering are variables beyond the realm of emotionally given variables of music as a stimulus, based on expertise. The variety of these variables shows that the aesthetic experience of music in music

criticism is determined by the high level of expertise. These variables are reported as:

- information on the relationship of the performed composition to other compositions of one composer, which requires the expertise of the composer's entire opus; "Richard Strauss's symphonic poem is based on late-romantic poetics and the attempt of the young composer at the time to establish a relationship between music and literary inspiration through a new genre. Since it is Strauss's beginnings, this work does not fall within the highest range of his work, but it does indicate a strong need for the author to create a monumental work in which he will demonstrate his musical skills and skill in constructing complex dramaturgy" (Cvetković, 2018: 73).

- information about the place of the performed composition among other compositions of the same stylistic style, which requires expertise in the knowledge of musical styles; "Anton Bruckner's *Symphony* No. 7 is much more than the usual symphonic work composed in the second half of the 19th century. Written between 1881 and 1883, it is a representative indication of all the efforts of the humble and retired Austrian composer" (Cvetković, 2018: 8).

- knowledge of the history of music, theory of form, harmony, counterpoint, instrumentation, and orchestration; "The third movement of the Sixth Symphony, which is sometimes performed as the second, is constructed in the form of a kind of developmental variations on the theme of the first movement. It is a composer's play of materials, which he organizes in various ways, placing them in distant character frames" (Cvetković, 2018: 30). "The composer blends the various stylistic spheres of what is called popular music. Thus, through the attitudes of this triptych, allusions to the pop song come to light, or too humorous imitations of Piazolla's tango, Khachaturian's play style and so on" (Cvetković, 2018: 47). "Conductor Vladimir Kulenovic has a good grasp of Brams's progressive formal principle of development in which the musical segments are logically derived from one another, like variations of their own. Interpretation of such a system is only possible with a tight joint of sections, the seams of which

should not be visible. The conductor of all four movements has succeeded in creating expressive units” (Cvetković, 2018: 49).

– the expertise of program politics of artistic music concert institutions. This type of expertise is present as an indispensable component of the cognitive whole in almost every critique. “The program of the last concert of the Belgrade Philharmonic was so attractive that it was hard to resist. These were works that were rarely or almost never performed on domestic concert floors. Schoenberg’s *Transfigured Night*, Schumann’s *Concerto for Four Horns and Orchestra* and Berlioz’s *Funeral and Triumphal Symphony* are acts that would draw any music fanatic to an event that simply should not be missed” (Cvetković, 2018: 23).

– the expertise in relation to the performing practice of an ensemble or soloist. “The situation with this ensemble is pretty clear. It has already built, very solid sound and the quality of concerts in most cases depends on the skill of the conductor himself. Regardless of the leader of the ensemble, it happens, however, that in a certain type of work, the Philharmonic sounds worse than this should be the case. It is about performing compositions of classicism, especially Mozart” (Cvetković, 2018: 10). “It is quite obvious that the orchestra grew up with the music of romanticism, and that *a due* scored compositions, in which it is insisted on a more chamber sound, would simply not be interpreted in a good way” (Cvetković, 2018: 10). “Giovanni Sollima is a distinguished violoncellist, a virtuoso who excels in a variety of stylistic environments, from Baroque to jazz. His interest in distant expressions is evident by the list of names of musicians with whom he collaborated during his career . . .” (Cvetković, 2018: 19).

– the expertise of the conductor’s career with regard to the program he conducts, the ensembles he works with, the existence of conductors. “Following his engagement as Chief Conductor of the Lucerne Symphony Orchestra and Theater and Music Director of the Loire National Orchestra, John Axelrod, a former pupil of Leonard Bernstein, was appointed Chief Conductor of the La Verdi Symphony Orchestra of Milan and Director of the Royal Seville Symphony

Orchestra. According to the biography, he has conducted more than 160 orchestras around the world, performing a diverse program spanning distant styles and genres. So far, Axelrod has made recordings for record labels, including Sonny, Warner, and Universal” (Cvetković, 2018: 29). “From the first tones one could clearly see the firmness in guiding and shaping each musical phrase, and in the new arrangement of sitting of the orchestra members (introduced by the chief conductor Gabriel Feltz), with violins in the foreground, cello in the middle and double basses behind the first violins, sound image was bright and very expressive, right in the string section” (Cvetković, 2018: 77).

Thus, cognitive mastering of the aesthetic experience in music criticism is based on expertise, with that expertise expressed at two levels: 1) as expertise in analyzing a work of music, which is realized as a cognitive mastering of the perceptual variables of the actual aesthetic stimulus with projections of previous aesthetic experiences; 2) cognitive mastering of aesthetic stimulus through knowledge beyond that aesthetic stimulus itself. Consequently, the verbalized cognitive mastering of a work of music in music criticism almost always consist of typical elements: conception of the concert program; the place of the performed work in the context of the opus of the composer, performer and/or conductor; the descriptive mediation of the aesthetic experience of the aesthetic stimulus with the verbalization that are refer to the treatment of certain musical components in the musical flow, from one musical segment to the other; affirmative or non-affirmative concluding evaluation about the concert as a whole.

Fifth Stage – Evaluation

Previous stages of aesthetic experience show that mastering the cognitive whole in music criticism involves a complex process of summing up aesthetic information of the actual sensory stimulus, previous sensory stimuli, and expertise. The critic is motivated by the success of this summation process, which needs to be ‘judged’ in the last stage of the aesthetic experience, a stage of self-evaluation that, according to

Leder and co-authors (2004), motivates all the previous stages of the cognitive process of the work of music. In the case of music criticism, it could be said that the self-evaluation stage is present in two ways, as *latent* and *permanent*. Permanent because music criticism is expected to be motivated by a successful aesthetic judgment based on which the work of music is linguistically mediated to a broader audience, and that the judgment is successful because it is expertly based. Latent, because in music criticism, positive aesthetic emotion, that is, a successful process of cognitive mastering is not an end in itself. Music criticisms are created with the intent of the **specific output of music criticism** to be a verbalized aesthetic experience of music.

The Output of Aesthetic Experience in the Music Criticism

Namely, music criticism is a mediation of music based on aesthetic experience, from which it is expected as an outcome: 1) that the process of cognitive mastering has been successfully completed; 2) that value judgments in criticism are justified and valid because they are based precisely on the success of the cognitive process, and success is implied by the stages of explicit classification and cognitive mastering performed at the highest expert level. The aesthetic pleasure of the critic in the self-positive evaluation of the aesthetic experience is permanent. Still, concerning the output of the music criticism, it is of secondary function because the aesthetic experience of the music critic is not focused solely on self-reward with positive aesthetic emotion. The output of music criticism to be functionalized as an ideal mediator of the aesthetic experience and judgment of music in the social mediation of artistic music is a condition of the cognitive process as a whole that directs all stages of cognitive processing of the music stimulus. Broader audiences approach music criticism as the expertly based aesthetic experience of music that has the legitimacy to point to the essential and value aspects of artistic music. Thus, the outcome of music criticism is *aesthetic judgments as a model for aesthetic judgments* of a wider audience. Music criticism

should be the kind of mediation of music that mediates the expertise of music to the general public and thus fund their aesthetic judgments in all stages of music information cognitive processing. The mediating role of music criticism is particularly necessary to the broader audience in order to successfully complete the stages of explicit classification and cognitive mastering. Therefore, music criticism is an essential element of the art music world because it produces the aesthetic preferences of the community it represents.

Conclusion

The 'testing' of the theoretical model of the aesthetic experience and judgment of the visual arts on the verbalized aesthetic experiences of artistic music is an attempt to find a theoretical model that exists outside the field of the scholarly disciplines about music and music philosophy and by which we could point out on the essential features of music criticism as a verbalized mediation of music. While individual music sciences focus on the analysis of a work of music as a research-theoretical ideal in its diachronic and historical appearance, and the philosophy of music on a speculative discussion of the concepts of music as art, music criticism operates in the space 'between' the disciplines mentioned. It emerges as a very specific type of mediation of the music experience, which starts from an individual, subjective aesthetic experience of music, but which, nevertheless, is expected to speak and judge music competently, expertly and objectively. Perhaps this is the reason that music criticism is rarely recognized as a legitimate object in the current auto-theoretical focuses of the humanities – philosophy and the science of music. In a further perspective, the model of Leder and co-authors (2004) in relation to the aesthetic experience of music could also get its diachronic dimension and become a theoretical model for identifying the characteristics of music criticism in different historical periods of Serbian music criticism existence. The 'test' performed, therefore, implies one potential perspective and methodological framework for the *historization* of music criticism, in the form of

a complex exploration of the variables of each stage of the aesthetic experience of music criticism in its broader diachronic arc.

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Zoomusicology Research in Serbia

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Abstract

Zoomusicology studies musical aspects of animal sound patterns and their aesthetic qualities. Applied Zoomusicology was the optional subject for MA and PhD students at the Faculty of Music in Belgrade from 2011 to 2017. The aim of this paper is to offer an overview of zoomusicology research in Serbia, resulting in 30 seminar papers and eight articles that have been published in Serbia and abroad during the last decade. Studying similarities between humans' and animals' communication systems and finding music elements of the animal sound patterns which correspond with music elements in Serbian folk songs and dances indicate the origin of music and language. Notating and analyzing animal sound patterns have strong pedagogical implications, enabling understanding of basic music elements. In the field of psychology and sociology, the role of nonverbal communication of apes, cats, dogs, and birds, and facial expression as a result of the effect of music on emotional expression in humans and animals has been considered. To understand evolutionary and ontogenetic development of rhythm in humans, the investigation of the rhythmic abilities of the great apes was conducted.

Introduction

In this paper, I presented an overview of my zoomusicology research in Serbia during the last decade. Zoomusicology studies musical aspects of animal sounds (Mâche, 1992). It also considers the aesthetic use of sound communication among animals (Martinelli, 2008), or the human valorization and analysis of the aesthetic qualities of non-human animal sound (Taylor, 2017). There are some common features between animal sounds and human music, such as organization and form, repetition and variation, intervals and scales, rhythm and tempo, sounds and timbres (Martinelli, 2008). An understanding of those basic musical parameters has been achieved through the use of familiar animal sound patterns in initial music

education (Petrović, 2009a, 2009b). The similarity of musical parameters, especially metric and rhythmic ones, in human and animal sound patterns indicates that humans imitated animals and introduced their sounds into their songs and dances (Petrović & Ljubinković, 2010, 2011). I was also researching the role of some animals in nonverbal communication (Petrović et al., 2014) in order to show gestures and facial expression as a result of the effect of music on emotional expression in humans and animals (Petrović, 2012). I was studying similarities between humans' and animals' communication systems in order to indicate the origin of music and language (Petrović, 2014, 2017). Finally, I did the experimental research with preschoolers and apes trying to find out whether rhythmic patterns they produce are inborn characteristics or experience (Petrović et al., 2017). Because of my particular interest in the rhythmic abilities of humans and animals, I decided to present this research in more detail in this article. The belief that animals can produce rhythm using purpose-built instruments is the fact that the ability to synchronize action or sound production to a regularly produced external pulse, or the so-called rhythmic entrainment, is not just a uniquely human ability, but also an animal (Patel, Iversen, Bregman, & Schulz, 2009).

Zoomusicology Research

My first zoomusicology research, presented at the second conference Changing Face of Music Education in Tallinn in 2009, refers to the application of animal sound patterns in music education for beginners. The aim was to use the familiar animal sounds as a tool for children understanding basic music elements through listening, analyzing and notating. For example, a nightingale's pattern brings a clear meter and rhythm (Figure 1).



Figure 1. The combination of eights and sixteens in the 2/4 nightingale's sound pattern (Petrović, 2009b).

Or, a cow's mew (Figure 2) and wolf's howling (Figure 3) could be presented with the analog notation pointing to the melodic contour and dynamics:

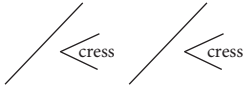


Figure 2. Analog presentation of the cow's mew (Petrović, 2009b).



Figure 3. Analog presentation of the wolf's howling (Petrović, 2009b).

However, in some animal sound patterns, we may recognize tonality. It is the case with one of the dove's patterns, where we hear the relation between tonic, dominant and the second scale degree (Figure 4).



Figure 4. The implication of tonality in a dove's sound pattern (Petrović & Ljubinković, 2011).

This type of cadenza on the second scale degree is a typical cadenza in many Serbian folk songs. Therefore I did the empirical research about music elements of animal sound patterns that were found in Serbian folk songs and dances. I presented the results at the 10th Conference on Interdisciplinary Musicology in Sheffield in 2010 (Petrović & Ljubinković, 2010, 2011). The aim was to show similarities between humans' and animals' communication systems through the human's imitation of animal sound patterns in Serbian folk music. For example, the contagious heterophony (Brown, 2012) could be heard in wolves howling, but also in Serbian traditional singing "ojkanje", where one person starts singing and then the rest of a group con-

tinuous. Or, the rhythm of a horse's gallop (Figure 5) is recognizable in a Serbian traditional dance "Nemo Glamočko kolo" (Figure 6).



Figure 5. The rhythmic pattern of the horse's gallop (Petrović & Ljubinković, 2011).



Figure 6. Serbian folk dance "Nemo Glamočko kolo" (Petrović & Ljubinković, 2011).

A dove's 5/8 meter is typical for many different Serbian folk songs and dances, while a dove's syncopated rhythm is similar to those in some Serbian folk songs and dances. Rooster's dotted rhythm is heard in Serbian traditional dance "Vlaško kolo", and crane's augmented fourth is a melodic pattern of Serbian traditional music as a part of the Balkan scale. Metric change from 6/8 to 3/4 and vice versa the cardinal makes while singing, can also be a metric base of some Serbian songs.

In 2011, I introduced Applied Zoomusicology as an elective subject for the MA and PhD students of different departments at the Faculty of Music in Belgrade. The results are 30 seminar papers on different topics. Students wrote about sound and gestural communication within different types of animals, such as *birds* (Emotional aspects of music communication in owls; Elements of dance in birds of paradise, cranes, and peacocks; The possibility of applying birds musical patterns in music pedagogy in Sarajevo; Birds as inspiration: "The Blackbird" by Olivier Messiaen; Zoomusicology aspect of music research and place identity of birds in Einojuhani Rautavaara music); *honey bee* (Honey bee and the Bible – communication through symbols; Factors of identities of *Apis mellifera* through the sound communication in human surrounding), *mammals* (Musical elephants: How did we get to it?; Equus Caballus: basic steps and rhythmic patterns; Can apes produce rhythm on children's percussion instruments?; Sound communication of wolves in the pack; Gesture communication in apes), etc.

In 2011, at the 14th Pedagogical forum of performing arts in Belgrade, I presented the results of the research dealing with the effect of music on humans and apes emotional expressions (Petrović, 2012). There were three groups of participants: 1) babies (less than 7th months); 2) people with mental disorders and 3) chimpanzees from the Belgrade's zoo. They were all listening to the eight different types of music: 1) pentatonic; 2) Serbian orthodox music; 3) Serbian folk song; 4) Bach's Air on G; 5) Mozart's Symphony 40 in g minor 1st movement the first theme; 6) House music; 7) Metal music, and 8) Music from the movie "Schindler's list". Their face and body reactions were recorded by the camera. The results show facial expression and gesture as the effect of music on emotional expression in humans and animals.

At the 5th International symposium of music pedagogues in Pula, Croatia, in 2017, I presented the exploratory research on whether rhythmic patterns of humans and chimpanzees are inborn characteristics or experience (Petrović et al., 2017). The research was conducted in May and June 2016, at the Preschool institution "Čika Jova Zmaj" Belgrade, Music school "Dr. Vojislav Vučković" Belgrade and Belgrade's Zoo.

The aim was to: 1) determine similarities and differences in preschoolers and chimpanzees rhythm reproduction, and 2) investigate if those patterns reflect the inborn characteristics or the experience.

The sample was a) *Children*: (153) boys (56) and girls (64), and b) *Chimpanzees*: (5) female (4) and male (1). The children sample was a) *Preschoolers*: (120) age 3–4 (48) and 5–6 (72), and b) *Music prekindergarten*: age 6–8 (33) boys (12) and girls (21).

The task given to children was to perform any kind of rhythm on claves without preparation. Children were tested individually to avoid imitation. Chimpanzees were given specially designed instruments – two plastic hollow tubes 30 centimeters long and 5 centimeters in diameter. These were made of simple materials that cannot harm the animals and were resistant to animals' strength. Both children's and chimpanzees' performances were recorded by the camera Practica DVC 14.1 HDMI.

Results showed that preschoolers frequently performed only the pulse and the gradual introduction of rhythmic substance increased with age. Without clear accents, a pulse cannot express emotions, and it is only the rhythm that can express the emotional state of a performer. However, preschoolers rarely performed rhythmic patterns, but with an increase in age, the rhythm performance of duple meter and 2 eights 1 quarter rhythmic pattern as the most frequent one appeared. It was expected that children in music prekindergarten would perform rhythmic patterns more frequently. Finally, chimpanzees did not perform any rhythm on the given instruments but have shown they enjoyed playing with the instruments and connecting tubes/sticks, just like some preschoolers.

However, only one male chimpanzee named Jova performed the rhythm, not with the sticks but with his body. The body movement was the consequence of his emotional state that was caused by the social context provoked by the zoo visitors. The form of his rhythmic pattern has two parts: 1) he stands in one place and produces rhythm with his legs alternately hitting the floor, 2) he moves in a circle and diagonally, and speeding the tempo causes the change of rhythm – from equal eights into the dotted rhythm.

Interestingly enough is that Barney, the chimpanzee from one of the Netherland's zoo, also produces a similar rhythm to Jova. He drums with his hands on the metal barrel found in his surroundings. Because the tempo was fast, Barney, just as Jova, changes eights into the dotted rhythm. Both of the chimpanzees create a kind of form, instead of Jova's two parts, Barney performed eleven sequences. The fast tempo in both chimpanzees was similar to human's manual rhythmic reproduction (Dufour, Poulin, Curé, & Sterck, 2015).

The results show that all three categories of participants performed isochrony, dotted rhythm, syncopations, and eight/quarter combinations. What we may consider as inborn characteristics are: pulse performance, isochrony, and fast tempo. The result of experience may be one-bar or two-bars rhythmic patterns, triple meter, and complex rhythm. Researching

chimpanzees' rhythmic abilities would help to discover the biological basis of rhythmic reproduction. The base of the rhythmic behavior of preschoolers and chimpanzees is a biological predisposition to perform and understand the rhythm.

Zoomusicology in Music Education

Animal sound patterns might be integrated into music education. For example, a dove's rhythmic patterns could be used to teach short-long rhythm in syncopated, dotted and 5/8 rhythm (Figure 7).



Figure 7. Short-long rhythm in dove's rhythmic patterns.

When teaching syncopated rhythm we can use a dove's syncopated rhythmic pattern. It can be recorded and introduced in education as an accompaniment to the song "Sunce nam se kra-jom krade" (Figure 8).

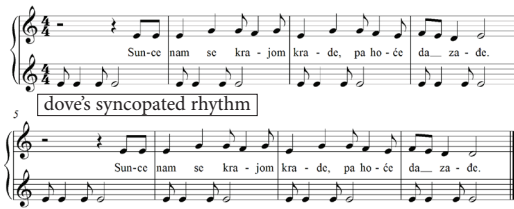


Figure 8. Dove's continual syncopated rhythm in the lower voice within the song "Sunce nam se kra-jom krade".

The dotted rhythm is very recognizable when listening to the rooster's rhythmic pattern. Therefore, introducing a dotted rhythm in music education is possible through a rooster's pattern. In the song "Sedela sam za mašinom šila sam" we introduce a typical rooster's pattern four times, namely after each two bars of the following eight-bar musical sentence (Figure 9).

A dove's 5/8 meter may be used three times within the song "Ej gidi Stojne ubava" as the important structural bond at the beginning, in the middle (between first and the second four bars of the eight-bar sentence) and at the end of the song (Figure 10).

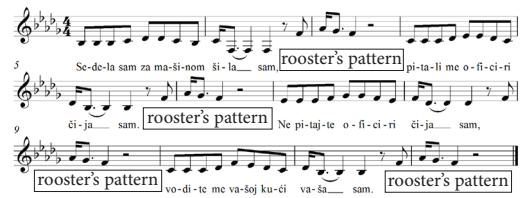


Figure 9. A rooster's dotted rhythmic pattern within the song "Sedela sam za mašinom šila sam".



Figure 10. A dove's 5/8 metric pattern within the same metric song "Ej gidi Stojne ubava".

Conclusion

Zoomusicology studies music-like aspects of sound communication among non-human animals and their possible aesthetic qualities. The aim of this article is an overview of zoomusicology research undertaken during the last decade in Serbia, both by myself and my students and colleagues. In most of the seminar papers written for the elective subject Applied Zoomusicology, students dealt with the musical and pedagogical aspects of birdsong and mammals sound patterns.

The central topic of my research is to find common features of animal sounds and human music. Like human music, numerous animal patterns most often have isochrony (seal, canary, horse) and duple meter (dove, nightingale), while the iambic meter is most likely conditioned by inspiration (rooster, dove, owl). However, we can also find non-isochrony (owl, cardinal, peacock). Humans and animals sounds share syncopated rhythm (dove) and dotted rhythm (rooster, owl). What is perhaps most surprising is that animals have a sense of tonal centre (frog, dove, duck). Method for describing and notating animal sound patterns have strong pedagogical implications, enabling understanding of basic music elements.

Studying similarities between humans' and animals' communication systems indicate mu-

sic and language origin. Most aspects of human speech acoustics, physiology, and neural control are similar to animals. Interestingly enough is that laryngeal descent is not uniquely human, but it serves to elongate the vocal tract, allowing callers to exaggerate their body size by decreasing vocal tract resonant frequencies in humans, birds, and mammals.

Since antiquity, humans have imitated sounds from their environment, especially those of animals. In Serbian folk songs and dances, animal sound patterns were incorporated for ritual purposes by direct imitation. Serbs imitated small melodic ranges of many animal species, drones, and heterophony of wolves howling, ending on the second scale degree of a turtledove singing, the interval of the augmented fourth of a crane, galloping rhythm of a horse and dotted rhythm of a rooster.

The role of some animals in non-verbal communication has also been considered. Namely, the musculature of humans and chimpanzees is very similar, just like their facial expression, reflecting similarity in expressing basic emotions. Facial expression in humans and chimpanzees depends on emotional state and social context. Listening to the same music causes a similar expression of emotion in humans and chimpanzees. This suggests that the musical experience is of evolutionary origin and that music can evoke primordial emotions in modern man.

In human and animal communication systems there is a link between sound quality and emotion. Animal sound communication is an expression of the functional aspects of their behavior, emotional state, and rarely an aesthetic expression. Animals most commonly use vocal and gestural communication, while mating season, as a warning sign given to other animals, to mark territory or to identify within species.

To understand evolutionary and ontogenetic development of rhythm in humans, it is inevitable to investigate the rhythmic abilities of the great apes, because they are the only species, apart from humans, having inborn percussion behavior. The particular interest in human and animal rhythmic abilities prompted me to present the 2017 experimental study which deals with preschoolers and apes rhythmic expression

on children's percussion instruments, aiming to search for the evolution of rhythm as inborn characteristics or experience.

All the published articles carry the reader through a series of disciplines – music education, cognitive and evolutionary musicology, music theory, aesthetics, and cognitive psychology. The interdisciplinarity of zoomusicology opens new perspectives on music origin, musicianship, and music education.

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Thematic Symposium 1

**Ravel's *Ondine* on the Horizons of Jung's and Bachelard's
Theories, organized by Igor Radeta**

Ondine as an Anima in the Context of Narrative Strategies of Ravel's *Gaspard de la Nuit*

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Abstract

The theoretical background of this paper is based on psychological theory in the widest sense of the word, in a way, it was formulated by Carl Gustave Jung in his analytical psychology (Jung, 1969, 1966/1996). Our theoretical platform is complemented with narratology, semiotics, and music analysis (Bal, 2000; Bruhn, 1997; Prince, 2003; Tarasti, 1994, 2000, 2002). One should have in mind the fact that all aforementioned approaches will be adjusted to a specific theoretical needs of a central object of interest – musical piece itself. Special emphasis is going to be put on an anima concept as an archetype of the unconscious and also as a term in a broader sense. It is envisaged that the study emphasizes the importance of the application of psychological theories in art research (Jung, 1966). One of the goals of this paper is to present various possibilities of interpretation of narratives in the musical work through the working of the anima concept: Bertrand's poem as a chronicle frame, mythical discourse, Ravel's composition as a musical framework, allegorical display of the path of individuation, musical process as a metaphor of the psychosexual dynamics (Palja, 2002), a chain of archetypes as a narrative of the collective unconscious and the story of anima itself. The significance of the study in which the applicative potential of the anima concept has been explored is primarily interdisciplinary. Musicological discourse is enriched by the terminology and conceptual settings of the analytical theory, whereas narratology attains concrete examples of anthropological character through understanding the psychological dynamics and artistic/musical vision as the manifestation of specific ways of storytelling. Psychological aspects and conditionality of musical narration, as well as propositional models of detection of the effects of anima within the musical work, enlarge the fund and certain type of knowledge in the field of applied psychology.

Introduction and Theoretical Background

Maurice Ravel (1875–1937), the distinguished French composer, could be considered as one of the first authors in early modern music, along with Mahler, Debussy, Scriabin, etc. Several poetical innovations that separate Ravel's oeuvre from classical-romantic canon have been applied in his paradigmatic and unprecedented program cycle for piano solo called *Gaspard de la Nuit* (*Trois poèmes d'après Aloysius Bertrand*), finished in 1908. The textual (prose in verses) template is not only an inspiration for creative endeavor but an integral part of the score, in the essential and ontological sense. *Gaspard de la Nuit* represents the pinnacle of composer's evolution, logical outcome after *Jeux d'eau* (1901) and *Une barque sur l'océan* from *Miroirs* (1905), and heyday in the development of fantastic/character piano pieces such as *Carnaval* by Schumann, *Années de pèlerinage* by Liszt and *Pictures at an Exhibition* by Mussorgsky. It should be noted that three movements form the cycle: *Ondine*, *Le gibet*, and *Scarbo*. One of the possibilities when we envisage composition as unity is to expound it as a nightmare in three episodes. Continuous “work” of the conscious, particular as well as collective one, points out to the larger narrative (mythological era – Christianity – modern/technological/machine era).

Bearing in mind that “the praxis of art is a psychological activity” (Jung, 1966: 65), *Ondine*, as a multilayered and polysemic piece of music, is an ideal object for interdisciplinary treatment. Thereby, we should separate personalistic and archetypal creative fantasy, which means that we will not take into account the psyche of the composer himself, but rather the process, psychological and musical, in its interference

with personal and biographical reflections. Importance of actuality of this phenomenon, that “aliveness of creative processes” (certain energetic charge), should be accepted without any doubt because precisely this occurrence testifies about the ontological reality of work of art and archetype as such. On the hub of crossroads, one encounters the chimera of the collective unconscious with the question: Who speaks with thousands of voices? (thousands of meanings, readings, interpretations and so on). Until we expose the heteroglossia matrix, we can follow the voice of music as “manner through which the psyche logos express itself”.

Our study is dedicated to the interpretation of a narrative matrix in *Ondine* with a special review on anima function as an important factor in shaping musical and textual flow. We are going to present and suggest several different angles from which one can understand the narrative¹ as a whole. Apart from anima archetype in the Jungian sense, during the discussion, we will use the musical semiotics (suitable for uncovering symbols from deeper structures) and applied narratology. The broader frame of our debate is founded on concepts derived from analytical psychology.

According to Sigmund Freud (Frojd, 1981) psychoanalysis can be understood, inter alia, as metapsychology that converses special cases amongst literary, visual, theatrical, film and musical arts. More than a hundred years pass by in interactions between complex psychoanalytic paradigms and, mostly, poetical art theories. These relations during the last century, besides other things, exist in the form of Jungian theory of collective unconscious and archetype, as a theory of mutual symbolic interference between West and eastern cultures (Šuvaković, 2011: 599). Daryl Sharp identifies archetype as “primordial, structural elements of the human psyche. Archetypes are systems of readiness for action, and at the same time, images and emotions. They are inherited with the brain structure-indeed they are its psychic aspect. They represent, on the

one hand, a very strong instinctive conservatism, while, on the other hand, they are the most effective means conceivable of instinctive adaptation. They are thus, essentially, the chthonic portion of the psyche ... that portion through which the psyche is attached to nature” (Sharp, 1991). Archetypes are suitable for adaptation in musicological consideration, precisely because of its non-material and symbolic character. The subject of our analysis dictated further theoretical constriction. For *Ondine*, there was no suspicion when it comes to choosing an adequate archetype. Anima is a challenge for designation, even for the Jung himself. “The anima is a personification of all feminine psychological tendencies in a man’s psyche, such as vague feelings and moods, prophetic hunches, receptiveness to the irrational, capacity for personal love, feeling for nature, and – last but not least – his relation to the unconscious” (Jung, 1964: 177). No better definition could be selected to describe the content of *Ondine*. The presence of Anima is largely reported in fairy tales, myths, literature, religions, ethnic traditions, and arts. This universal existence of feminine archetype in forms of fairy, witch, princess, queen or goddess places it at the center of the inquiry.

Our approach includes musical semiotics and applied narratology. The latter is essential for understanding narrative conditions and functions. The theory of narrative text enables us to locate a focal point in order to properly reconstruct the given event. Musical semiotics, postulated by Tarasti, helped us to identify significant signs under the previously revealed narrative context, including the compound ones. The network of spatiality, temporality, and actoriality represents the tripartite system designed to comprehend musical space (vertical component), time (horizontal component) and action (energetic component). Both approaches, empowered with Jung’s theory, offer better insight into the psychological basis of creative impulse in a musical piece similar to *Ondine*.

Narrative Patterns

There is, at least for the occasion, eight possible narrative matrices in, both structurally and super structurally, *Ondine* from the cycle *Gas-*

¹ Narrative is a representation of one or more real or fictive events communicated by one, two, or several narrators to one, two, or several narratees (Prince, 2003: 58).

pard de la Nuit: Bertrand's story, musical piece with poem, musical form itself, Anima as a guide, stages of Anima, Anima as alive carrier, chain of archetypes and psychosexual dynamics. The number of narrative patterns is, naturally, not exhausted with this list. Our hypothesis, here in the form of proposed narratives, serves as a logical sketch of a primary problem in this work.

Choosing a poet's standpoint as a focal² angle drives our attention to the text of Bertrand's prose poem.³ Nevertheless, one should not neglect certain conditions that exist and acts behind the text genesis. These conditions, according to our assumption, shape the vital elements of the phenomenon. However, we will have to make an exegesis of a story.⁴ Explanation aims at a psychological level, in particular. In narratives, Anima can be, as it mostly is, a representation/notion/image (symbolic plane) with one exception, where Anima is an alive, self-conscious, and energetic actuator of the creative process (ontological plane). Tale format is analogous to a content form in which the subjects of an analysis render themselves inside the frame of analytical psychology, for example, when they speak about dreams. Many topics of the unconscious are hidden in deeper textual layers as a metaphor, allegory, symbol, etc. In that respect, interpretation and explanation are necessary for understanding both the psychological state of a man and the comprehension of artwork in its details.

Bertrand uses various symbols in his prose poem: Voice, Water, Moon, Siren, Mistress, Castle, Lake, Fire, Earth, Air, Father and so on. Here, the Voice is the Ondine, our famous siren, which, in the role of Anima, addresses to a poet, directly. In the poem, the mysterious Mistress of the Castle appears, but it is not so clear what she

represents. The action revealed on the lake, for which one can presuppose subconscious. The element of water connects conscious and unconscious. When the water appears as rain, it is closer to a conscious state, and opposite, when water resurfaces itself in the form of a lake and serves as a building material of "liquid watery beings" it represents unconscious. The Moon has a function of totality symbol (mandala – ancient Sanskrit word for circle, roughly speaking), under whose light the action takes place. Our poet gets a guide for his journey through misty unconscious: possessive and negative Anima, who tries everything to hold him under the spell of her world, even to make him the "king of the lake". No matter what she does, Bertrand rejects the offer, he no longer wants to hear the enchanting and indulging voice of Anima, constantly ready for a hypnotic effect. Then, he integrated real Anima (in a form of mortal women, angry and huffish) in the conscious part of his psyche. Precisely in this decisive moment, Bertrand (as own hero in a poem) awakes in front of a window, streaked with raindrops. Poet is on the road of individuation, making progress through wakened dialog with Anima. The question of his feminine side is central for the poem's narrative, starting with introductory stanzas given in a direct speech, uttered by Ondine. By arranging exposition in this way, Bertrand emphasizes the importance of the statement given by Ondine. She takes multifold functions: spokesman, heroine, central protagonist and the inner voice of wisdom. The very beginning of a story starts with her irresistible pronunciation. Ondine is the main actor⁵ (with most actantial⁶ roles), narrator, even the focal angle from which the tale unfolds. This dominant capacity can result, both with positive and negative influence on the female side of Bertrand's consciousness. Still, especially when we analyze the last two stanzas of a poem, it is obvious that the poet

² Focalization is the perspective in terms of which the narrated situations and events are presented (Prince, 2003: 31–32).

³ The whole prose poem on English language one can find in literature (Radeta, 2019: 331).

⁴ Story is the content plane of narrative as opposed to its expression plane or discourse; the "what" of a narrative as opposed to its "how" (Prince, 2003: 93).

⁵ Actants are syntactic units. Actantial roles are defined in terms of their modal content and function in narrative. Actors emerge through semes of individuation. Several actors may embody a single actant and vice versa (Tarasti, 1994: 303).

⁶ Actant is a fundamental role at the level of narrative deep structure (Prince, 2003: 1).

managed to bring round his feminine side under the enrapture of Anima. Bertrand reached out to the level of personal choice, thus successfully returned to the realm of “real”. Willingly changing the future position of a lake king (this offer could be understood as an egoistic projection) for the love of mortal women, Bertrand has mastered his own fantasy (usually maiden with fairy-like character, so beautiful that she petrifies the subject, *la femme fatale* type) in the same time reviving the emotional and spiritual capacity through his mature relationship toward worldly women. The whole narrative points to the autodiegetic⁷ principle.

The second narrative is a subset of the intersection between poem and musical structure semiotically explained. A table showing the described relation and the concomitant argumentation one can find in the literature (Radeta, 2011: 64). However, it is worth mentioning that Anima, here in the form of crucial actor Ondine, shape structural and contextual plane, validating both the musical processes and associative network emanating from the prose poem.

The case of the musical form itself as a focalizing factor is interesting from various aspects. First, the polyvalent character of micro- and macro-formal elements is one of the obvious symptoms of Anima’s presence. The second important insight concerns the sonata form as a vague container of whole creative input. Dramaturgical and theatrical power implanted in threefold edifice practically serves as a scene for Anima’s performance. The table contains a comparison among sonata form and the scenic/drama shape of the poem one can find in an external source, with the following discussion (Radeta, 2011: 49–75, 110).

Psychological questions are more clearly present in the fourth narrative. The role of guide through the unconscious part of the psyche, which is so commonly attributed to Anima, makes another layer in “complex heteronomous text which travels through time” (Radeta, 2012: 117) and affects the soul. Narrative patterns that originated from Anima’s focal point func-

tion as a spotlight, illuminating wanted details and, at the same time, concealing less desirable things. Also, the dynamics of alternation between entering and leaving the conscious zone somewhat resemblance to the movement of the waves and lunar phase. Separation from water element, represented by water seme⁸, leads hero’s (but also ours as well) psyche to conscious. The fascinating thing is, from the angle of the presented narrative, that complete flow (both textual and acoustical/musical) is directed toward conscious, merely simultaneously starting from and stimulated by the unconscious. This paradox at first glance, is primarily reconciled by musical means, mostly with texture and key scheme (see Radeta, 2019). As our table shows (see Table 1), shifting parts are governed by the norm, in order of appearance regularly with some distinctive outweighs in duration when unconscious dominates. We should notice that water as a natural phenomenon on the psychic level gravitates to the unconscious, leaving us with the notion that the conscious state is artificial, even construct in some way. Anima fails in prevailing at the battleground with constructed, civilized consciousness. On the other hand, in the positive reading of the described situation, Anima helped our hero to bring the feminine side to the light of the conscious.

Table 1. Ondine as anima-guide through the unconscious.

Psyche	Measure
Unconscious	1–22
Conscious	23–30
Unconscious	31–72
Conscious	73–80
Unconscious-to-conscious	81–84
Conscious	85–92

The next narrative leads us more deeply to the realm of Anima, where we encounter the story from the perspective of distinctive types that arise during the process of her evolution. These phenomenal stages are discussed inside the

⁷ Autodiegetic narrative is a first-person narrative the narrator of which is also the protagonist or the hero (Prince, 2003: 9).

⁸ Seme is a features of the signified (Tarasti, 1994: 304).

psychological discourse (Jung, 1964: 177–188). Nevertheless, their influence goes even further. Whole *Ondine* from *Gaspard de la Nuit* is proof of the transcendent nature of qualities symptomatic for the psyche. Individual and peculiar hallmarks of psychic forms engraved themselves on musical texture with such persuasiveness that excludes any reasonable doubt. We propose the following order:

1. The figure of Eve – erotic/sensual aspect m. 1–42
2. Faust's Helene – romantic, aesthetic, and sexual aspect m. 43–72
3. Virgin Mary – spiritual love m. 73–80
4. Sapientia – transcendent feminine wisdom m. 81–92

The fascination with sonic sensuality prevails in the first half of a musical piece. Satiety with timbre, seventh-chords, ninth chords, vibrant rhythmic pulse, multilayer texture, acoustic effects, and much more, represents the attractiveness of Eve. A thing gets complicated when we encounter plot elements that gave rise to the romantic figure of Helene, conflicted by separation of primal unity. In musical terms, the development section provides the necessary plateau for staging the dramatic scene. After the storm, the calm nature and prolific reprise show us how the face of Anima changed under the influence of lived suffering. Attained spirituality came as a result of the synthesis of the previous stages. Love in a musical context is depicted by sufficiently large space for the inclusion of every existed element. The even higher platform is reached in the contour of Sapientia. Only this stage is proper for eternity, and this is the reason for Ravel to finish his piece with the transcendent paradigm. In the crystal arpeggio chords, the composer reflects the purity of feminine wisdom. The whole typological range of Anima is present in the musical process.

The aliveness of the Anima is, even more so, apparent in the next narrative matrix. In this case, the focal point is Anima, both as an archetype and a being (contingent or independent). Her presence in music is materialized through main theme complexes that can be interpreted

as isotopy⁹, in semiotic terms. We have found four theme complexes in *Ondine*, who formed four pillars in a piece architectonic (see Figures 1–4). Also, isotopies indicate actuality, tangibility and uniformity (thus the identity) of Anima being, which directly acts/works on the surface and depth of musical texture.



Figure 1. Ego theme – Ravel, *Gaspard de la Nuit*, *Ondine*, m. 3–4.



Figure 2. Mature theme – Ravel, *Gaspard de la Nuit*, *Ondine*, m. 43.



Figure 3. Shadow theme – Ravel, *Gaspard de la Nuit*, *Ondine*, m. 48



Figure 4. Integrated theme – Ravel, *Gaspard de la Nuit*, *Ondine*, m. 81.

One should notice the artistic and skillful care with which Ravel portrays Anima as an alive carrier of psyche content. All four isotopies (ego, mature, shadow, and integrated) are crafted to conform to special technical output and spiritual appearance. The personal quality of Anima is situated in a melodic line (first with legato expressiveness, then in one breath,

⁹ Isotopy is a set of semantic categories whose redundancy guarantees the coherence of a sign complex and makes possible the uniform reading of any text (Tarasti, 1994: 304).

afterward shadowed with octave doubling and finally nested in four-part texture). The contextual plane is evoked by working on water seme (solid but a liquid block in first, then slightly diluted and excited, afterward tempestuous and at last wavy with regularity). Every described feature contributes to the aliveness of the Anima phenomenon in musical surroundings.

Our seventh narrative pattern is realized from the string of archetypes. Table 2 informs us about psychological content and order of exposure. Definitions of used concepts, terms and symbols can be found in the literature (Jung, 1969, 1966/1996).

Mere possibility to explain the musical process with archetypal discourse is fascinating and thrilling discovery. The intermingling of the paradigmatic and distributional level of sound manifestation is connected in the sphere of the psyche. The nature of energy flow and course of action in the musical realm parallels the psyche dynamic, whose interpretation matches perfectly with sound structures. It seems like our hero

from the poem is on the road of individuation (Jung, 1964: 160–229). Once again, we must conclude that the Anima role in personal maturing of a subject is crucial.

Last, but not less important is a narrative matrix closely related to sexuality. Arousal and instinctive potential of mythic mermaids and nymphs are a common theme in cultural studies and analytical psychology as well through the concept of Anima. In our example, the emotional and general psychic side of sex and its manifestation is, therefore, built-in content. The whole *Ondine* movement from *Gaspard de la Nuit* can be understood as an allegorical representation of the sexual act itself. For a detailed study of this question, one can consult the external source (Radeta, 2012: 115–116).

Conclusion

How can one separate psychological, poetical, and creative lineage in the composer's being? Sometimes it is justified only for the purpose of analysis and understanding. Looking at this problem from the perspective of the wholeness, we can get complete and solid insight into a real state. The creative urge is the part of a personality and a psychic component. Composer poetical principles stem not only from a conscious/unconscious part of inner life but are deeply rooted inside a soul/individual, as a unique phenomenon. Also, the psyche is under the profound influence of identity and creativity. This complex inner/outer fluidity verifies a highly sensitive and mosaic entity. Our study tends to sketch and propose some features of the skillful impact of the psyche, in the form of Anima archetype, on musical art, severally Ravel's enigmatic piano piece *Ondine*. The starting hypothesis about the relevance of psychology for art and music, in particular, was largely confirmed on multiple levels. Our exploration of musical and textual structures and surpluses in *Ondine* indicates the affect of the psyche. It shapes the main theme, leading actor, mythic background, formal plane, expression, the story itself, and even focalization. This is only an introduction to further engagement. The feminine image of the unconscious showed obvious will

Table 2. Chain of archetypes and/or mental state.

Archetype (or mental state/ process)	Measure
Child archetype	1–2
Mother/Anima archetype	3–22
Regression	23–30
Child archetype	31–32
Mother/Anima archetype	33–45
Father archetype	46–47
Mother/Anima archetype	48–50
Father archetype	51–52
Mother/Anima archetype	53–57
Father archetype	58–62
Progression	63–66
Ego	67–68
Shadow	69–72
Self	73–80
Persona	81–88
Neurosis	89
Numinous	90–92

power in musical theatre dramatized by Ravel. “Anima gives psychic value to the happenings of the world, including the events of the creative act” (Medić, 2012: 540). Presented and materialized value is not limited only to the realm of creativity. The ambitious potential of Anima is strong enough to cross limits/border/liminality between worlds/otherness. In this freely exposed flux, one should not fall into the trap of fantasy/unreal. Jung explained this notion himself.

“But what does the role of the anima as a guide to the inner world mean in practical terms. This positive function occurs when a man takes seriously the feelings, moods, expectations, and fantasies sent by his anima and when he fixes them in some form, for example, in writing, painting, sculpture, musical composition, or dancing. When he works at this patiently and slowly, other more deeply unconscious material wells up from the depths and connects with the earlier material. After a fantasy has been fixed in some specific form, it must be examined both intellectually and ethically, with an evaluating feeling reaction. And it is essential to regard it as being *absolutely real* [emphasis added]; there must be no lurking doubt that this is ‘only a fantasy’. If this is practiced with devotion over a long period, the process of individuation gradually becomes the single reality and can unfold in its true form” (Jung, 1964: 186).

Unfolding became a true path, both as an analytic tool and the knowledge of Self. In this manner, we are traveling toward episteme, which unites the object of knowledge and subjective mind. In other words, there is no difference between musical piece *Ondine*, Ravel’s homo creator, Bertrand’s words, *Ondine* as an actor, our mind, and Anima. The absolute reality mentioned by Jung offers solid ground for such a conclusion. Narrative matrices propounded and presented in our discussion was born and grown up from the source founded in undivided Real. This is precisely why every one of them is connected to the same core. Focal point serves not to enable centrifugal force but rather to give a complete, “all-seeing” eye insight. Narratology applied to *Ondine* revealed an abundance of occasions. It seems that story-

telling is one of the crucial similarities that conjugate Bertrand, Ravel, *Ondine*, Anima, and theoretical discourse. Our eight narratives should be understood as metatextual and propositional patterns. The voice and energy of Anima are indispensable in every strategical matrix. We mention once again that the reader can get to know about particular cases (narrative matrices) in selected literature (Bruhn, 1997; Radeta, 2011, 2012, 2019). Ending remarks deserves yet another wise voice from the past. “Music expresses in sounds what fantasies and visions express in visual images (...) Music certainly has to do with the collective unconscious” (Jung, 1973: 542).

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The Dramaturgy of *Ondine* by Ravel from the Perspective of Jung's Concept of the Psyche

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Abstract

The dramaturgy of the movement *Ondine* from the program piano cycle *Gaspard de la Nuit* by Maurice Ravel is considered based on the concept of the psyche by Carl Gustav Jung. Jung determines the psyche as a relatively closed, energy system, i. e., “conscious-unconscious whole” (Jung, 1984), characterized by a constant flow of life, psychic energy – libido, by means of progression and regression, i.e., individual adaptation mechanisms to the conditions of external and internal world (Jung, 1918/1978; Hark, 1988/1998). In the adaptation process, i.e., the process of establishing psychological balance, an important role is played by archetypal images, some kind of unconscious regulators of directing psychic processes, “spiritual life forces” which regulate spiritual experiences in the process of wholeness, individuation, self-realization of every human being (Jung, 1984; Hark, 1988/1998). Following Jung's model of the psyche, an analytical-interpretive approach to Ravel's *Ondine* will focus on the illumination of the musical-dramatic whole of the composition from the indicated aspects of the dynamic psychic phenomenon.

Introduction

Authors who dealt with *Ondine* and the entire cycle *Gaspard de la Nuit* emphasize the connection of this Ravel's achievement with the world of dreams and the world of fantasy (Bruhn, 1997; Eccles, 2004; Radeta, 2011; Tekalli, 2014), some of them trying to penetrate into a deeper symbolic resonance between the musical and poetic texts. Thus, for example, Alexander Eccles considers that *Gaspard* is “a realistic dream, a lucid world of darkness and terror” (Eccles, 2004: 10), and Igor Radeta explains that this “masterpiece” represents a “tense theatrical struggle of actors in the three-act... a dramatically life-giving play of a dialectical spirit” (Radeta, 2011: 100). My intention on this occa-

sion is to point to a possible interpretation of *Ondine* as a kind of “conscious-unconscious entity” in the external manifestation (since it is a piece of music), relying on the concept of the psyche by Gustav Jung; that is, I will try to show how the “tense struggle of the actors” in *Ondine* that Radeta speaks of can be viewed from the perspective of the basic concepts of Jung's theory of unconscious – as the “struggle” of the actors of the psyche, i.e., archetypes in the process of progression and regression of libido. My goal is not to take over the competencies of an analytical psychologist. Analytical psychology appears here as an auxiliary discipline, with which musicology is associated in the field of *hermeneutical* approach to the piece of music, that is, as Berislav Popović would say, in searching for “a sense even more hidden behind the sense” (Popović, 1998: 123), or, in the words of Mirjana Veselinović-Hofman, in searching for “a symbolical superfluity of the structural organization of a work of music” (Veselinović-Hofman, 2007: 298). Attention, however, will not focus on detecting autobiographical moments in *Ondine* nor on the psychology of its author. Analytical-interpretive approach to Ravel's *Online* will focus on the illumination of the musical-dramatic whole of the composition from the indicated aspects of a dynamic psychic phenomenon.

Jung's Model of the Psyche

Emphasizing autonomy of a psychic phenomenon, Jung defines the psyche as very dynamic, or as he puts it, a “relatively closed [energy] system”, based on the constant flow of life, the psychic energy he calls libido (Jung, 1984: 76, 37). Among the most significant phenomena of psychic life are the progression and re-

gression of libido. Progression is a continuous process of adaptation to the environmental conditions, and regression is the adaptation to the conditions of the inner world. Progression and regression do not relate to the evolution and involution, but merely represent different directions of libido movement by means of which the adaptation of an individual to the environmental conditions/the conditions of the inner world is achieved or, in turn, does not achieve (Jung, 1984). The progression of libido, i.e., the satisfaction of the demands of environmental conditions, is achieved only through a suitably directed attitude (extravert or introvert). This process is based on maintaining balance, regular interactions, and mutual influences of opposite pairs. If the suitably directed attitude is incompatible with the external environment demands, the tension that will emerge leads to the conflict/struggle between the opposites. Then regression occurs – the process of moving the libido back to the unconscious part of the psyche and other psychic functions, which are relatively unconscious and therefore unused, untrained, undifferentiated (Jung, 1984). These functions are activated by regression, and so reach consciousness, but in a somewhat incompatible form, to some extent distorted. By activating an unconscious state, regression confronts consciousness with the problem of the psyche instead of the problem of outward adaptation and finally leads to the necessity of adapting to the inner world of the psyche (Jung, 1984). However, being that the incompatible contents of the psyche contain the “germs of new life and vital possibilities”, “the possibilities of life renewal”, a new progression is born/better adaptation to environmental conditions (Jung, 1984: 106).

Therefore, both conscious and unconscious psychic processes, constantly interact (though this is not always the case), and are responsible for individual adaptation. Namely, the unconscious part of the psyche is “a second psychic system coexisting with consciousness” (Jung, 1969: 170), in fact, either below or above the field of consciousness. According to Jung, “[w]e must . . . accustom ourselves to the thought that conscious and unconscious have no clear demarcations, the one beginning where the other

leaves off. It is rather the case that the psyche is a conscious-unconscious whole” (Jung, 1969: 186). A kind of “unconscious regulator”, “a psychoid”/“transcendent factor” of psychic energy shaping is an archetype as such, which is not accessible to consciousness and, as such, it is invisible, unrepresentable and unimaginable (Jung, 1984: 302, 311), but nevertheless influences the field of consciousness through the archetypal image/primordial image (the mother archetype, the father archetype, the child archetype, Anima, Animus, the Self archetype, etc.). The archetypal image represents innate and inherited collective phenomenon, “typical pattern of behaviors that, when translated into consciousness, look like the image” (Jung, 1984: 326). It appears in the field of consciousness in the form of symbols in dreams, fantasies, myths, fairy tales, religion, and art, even in parapsychological experience (Jung, 1964/1996).

Archetypes are dynamic factors that manifest themselves in impulses (Jung, 1964/1996). They can be healing or destructive, but they have never been indifferent (Jung, 1964/1996). They reproduce themselves at any time and in any part of the world regardless of racial, national, ethnic, gender, mental, geographical, and temporal conditions (Medić, 2012). They belong to the spiritual realm, and their appearance is always numinous (Jung, 1964/1996). Their origin is in an area designated by Jung as collectively unconscious, which is the deepest impersonal level of the unconscious, common to all humans, which “preserves and transmits the common psychological heritage of humanity” (Jung, 1964/1996: 116). Thence, according to Jung, “the human mind is not born a *tabula rasa*” (Jung, 1969: 342), it is only born unconscious, and carries with itself “collective thought models of the human mind” that enable a man to understand and act in a typically human way, not otherwise (Jung, 1964/1996: 80). That is why Jung points out that archetypal images are “unconscious regulators”, “factor of modification and motivation” (Jung, 1984: 302), that is, as Helmut Hark explains, “spiritual life forces” which regulate spiritual experiences in the process of wholeness, individuation, self-realization of every human being (Hark, 1988/1998: 26).

The concept of individuation is essentially the central concept of Jung's theory of the unconscious, which signifies the process of psychic maturation or growth of the subject through the union of opposite forces within itself, that is, establishing the balance of the unconscious and conscious parts of the psyche, the realization of totality – the whole psyche, which occurs throughout life by the action of archetypal images and the processes of libido progression and regression (Jung, 1964/1996). The real process of individuation, in fact, as Mari Louis von Franc points out, represents the conscious coming-to-terms with one's own inner center, psychic nucleus, or Self, as Jung designated it (Jung, 1964/1996). The Self is the source of all archetypal images and innate psychic tendencies toward structure, order, and integration, i.e., the most fundamental creator of psychic wholeness and order, a unifying force, a psychoid/transcendent factor of arranging numerous polarities in psychic life (Jung, 1964/1996; Stajn, 1998/2007).

The Dramaturgy of *Ondine* by Ravel

Many aspects of the briefly described dynamics of the psyche can be perceived through the dramaturgy of Ravel's *Ondine* from *Gaspard de la Nuit* – the first work of its kind in the field of program music (in the narrow sense of the word). Namely, program music has produced different compositional solutions, but in the form of a symphony and a symphonic poem. In *Ondine*, as well as in the whole cycle, Ravel partly follows the pre-romantic tradition of illustrative/descriptive music, but he does not intend to “tell the story” of poem/poems by Aloysius Louis Bertrand (Radeta, 2019). It could be said that Ravel counts on an active and intelligent listener and his associative mechanisms and the ability to recognize formal symbolism – correspondence of the latent dramatic logic of the composition and the logic of “dramatic situation”, the symbolic logic of the program basis of the work.

Bertrand's poem, and Ravel's composition as well, represents a very specific treatment of the famous legend of Ondine – a water nymph of exceptional beauty and voice, searching for a

soul that can only be acquired through her marriage with a man and his faithfulness. In various fairy tale versions and stage adaptations, the seductive character of Ondine is in the focus of the narrative, and the plot is given from the perspective of this fantastic being (Bruhn, 1997; Radeta, 2019). Bertrand's poem and Ravel's composition are articulated, however, as a sort of phantasmagoria of a young man who, in the role of narrator, recounts his own hallucinatory vision or, perhaps, his own dream of Ondine and her fantastic water kingdom. This is unambiguously referenced by the conception of the poem in two parts with an epitaph at the beginning, whereby a little real drama is “developed” by the direct speech (Radeta, 2011). The epitaph, which is a quote by Charles Brugnot, has the function of introduction to the fantastic story (Table 1), in which the young narrator announces Ondine's appearance (Radeta, 2011). The first part of the poem, which contains the first three stanzas, represents Ondine's “poem” referred to the young man; it is articulated in the form of quotations and begins with the first-person address of the Ondine character. In doing so, in the first stanza with exposition character, Ondine presents herself as a “lady of the manor” watching from the balcony a “lovely star-bright night and the beautiful, sleeping lake” (Radeta, 2019: 331); the second stanza represents a further depiction of Ondine's unreal world, the world of the “water palace” at the bottom of the lake; the third stanza introduces new characters – Ondine's father, the king of the lake and Ondine's sisters, so it plays the role of further exposition of the characters, but also the plot of the drama (“hit” by the water king), which is not as concrete in the poem as, it will be seen, in the music itself (Radeta, 2011). In the last two stanzas, in the function of the resolution, the young narrator explains that he rejected Ondine's ring/the offer to “become king of the lake” because he “loves one mortal woman” (Radeta, 2019: 331).

Observed from a Jungian perspective, the whole poem *Ondine* is a symbolic representation of the psychic processes occurring in the psyche of the young man-narrator. Adventure journey and heroic endeavors, which are characteristics of a fairy tale, here are internalized

Table 1. The dramaturgy of the poem (English translation of the poem relies on Bruhn, 1997: 183, 185, and Radeta, 2019: 331; the left and right columns are created by M. L.).

<p><i>Epitaph/introduction to the fantastic story</i></p>	<p>.....I thought I heard I thought I heard A vague harmony that enchanted my sleep, And near me a scattering murmur similar to Songs interspersed with a sad and tender voice. Charles Brugnot – Two geniuses</p>	<p><i>Announcement of Ondine emergence</i></p>
<p><i>Exposition</i> “Ondine’s song” to the young man, in the form of quotation, with a direct first-person address</p>	<p>“Listen! – Listen! – it’s me, it’s Ondine Who brushes with these drops of water The resonant diamonds Of your window lit by gloomy moonlight; And there is in her silken robe is the lady of the manor Contemplating from her balcony the lovely star-bright night and The beautiful, sleeping lake.”</p>	<p><i>Ondine presents herself as a “lady of the manor” watching from the balcony “the lovely star-bright night and the beautiful, sleeping lake”</i></p>
	<p>“Each ripple is a ‘child of the waves’ swimming with the current, Each current is a path winding toward my Palace, and my palace is built fluid, at the bottom of the lake, In the triangle of fire, earth and air.”</p>	<p><i>Further depiction of Ondine’s unreal world, world of water palace at the bottom of the lake</i></p>
<p><i>Further exposition and plot</i></p>	<p>“Listen! – Listen! – My father beats the croaking water With a branch of green alder, and my sisters Caress with their arms of foam the cool islands of herbs, Water lilies and gladioli, or make fun of the sickly, bearded willow That is fishing with rod and line.”</p>	<p><i>Introduction of new characters – Ondine’s father, the king of the lake and Ondine’s sister and beat of water king</i></p>
<p><i>Resolution</i></p>	<p>◆ Having murmured her song, she begged me to accept her ring on my finger, so that I would be the husband of an Ondine, and to visit her palace with her, so that I would be King of the lakes. Having murmured her song, she begged me to accept Her ring on my finger, so that I would be the husband of An Ondine, and to visit her palace with her, so that I would be King of the lakes. And then I replied that I loved a mortal woman, Sulking and peevish, she wept a few tears, Then broke into laughter, and vanished in showers of rain That drizzled white across my blue window pane.</p>	<p><i>Narrator explains that the rejected Ondine’s ring/the offer to “become king of the lakes” because he “loves the mortal woman”</i></p>

in the young man’s psychic “journey” to the transformation, from a destructive orientation of his psyche to establishing a psychic balance between the unconscious and the conscious part of the psyche. Namely, an expedition to unknown countries often appears as a symbol of the process of individuation in dreams, fairy tales, and literature (Jung, 1964/1996). In the

poem, that is Ondine’s unreal water kingdom, whereby water itself is a symbolic representation of the libido movement, which in the experience of the archetypes anime, self, and father, results in transformation/adapting the psyche to the conditions of both external and inner world.

It is not unusual, therefore, mentioned conception of the poem in two parts. The first part,

Ondine’s poem as the embodiment of the unreal world, is, in fact, a symbol of the unconscious part of the psyche of young man, while the second part, with directly addressing of the young man, unambiguously points to the conscious part of his psyche (Table 2). The unconscious in the first part of the poem is additionally referenced by the part of a day-night; for the night is a symbol of the unconscious.

In Jungian words, as if the libido took the conscious contents to the unconscious, so from the beginning of the poem, the audience is “confronted” with the problems of the inner spiritual life of the young man, precisely, with

the moment of regression process, which, as mentioned, activates other, relatively unconscious, undeveloped, unused psychic functions. Here it is undoubtedly inferior emotional function whose development is inhibited by the destructive influence of negative anime symbolized in *Ondine* character. Namely, anima – the archetype of a man’s spiritual life and femininity in his unconscious/the inner image of a woman or the hidden and unconscious femininity in a man – is the personification of all feminine psychological aspirations in the male psyche (Hark, 1988/1998); anima represents an inherited psychic adaptation system, but like all archetypes, it

Table 2. The dramaturgy of the poem from the Jungian perspective (English translation of the poem relies on Bruhn, 1997: 183, 185, and Radeta, 2019: 331; the left and right columns are created by M. L.).

<p>The first part <i>Ondine’s poem/</i> <i>unreal world</i> <i>Symbol of the</i> <i>unconscious</i> <i>part of</i> <i>the psyche of a</i> <i>young man</i> <i>Part of the day/</i> <i>night is also a</i> <i>symbol of the</i> <i>unconscious</i></p>	<p>“Listen! – Listen! – it’s me, it’s Ondine Who brushes with these drops of water The resonant diamonds Of your window lit by gloomy moonlight; And there is in her silken robe is the lady of the manor Contemplating from her balcony the lovely star-bright night and The beautiful, sleeping lake.”</p>	<p><i>The beginning of the poem –</i> <i>problems of the inner spiri-</i> <i>tual life of a young man, the</i> <i>moment of the regression</i> <i>process – activates inferior</i> <i>emotional function inhibited</i> <i>by destructive influence of</i> <i>negative anime symbolized</i> <i>in the Ondine character</i></p>
	<p>“Each ripple is a ‘child of the waves’ swimming with the current, Each current is a path winding toward my Palace, and my palace is built fluid, at the bottom of the lake, In the triangle of fire, earth and air.”</p>	<p><i>The Self archetype – the</i> <i>kartenion of the elements of</i> <i>water, fire, earth,</i> <i>and air</i></p>
	<p>“Listen! – Listen! – My father beats the croaking water With a branch of green alder, and my sisters Caress with their arms of foam the cool islands of herbs, Water lilies and gladioli, or make fun of the sickly, bearded willow That is fishing with rod and line.”</p>	<p><i>The father archetype –</i> <i>Ondine’s father</i> <i>Ondine’s sisters – the other</i> <i>destructive unconscious</i> <i>female traits of young men</i></p>
	<p>◆ Having murmured her song, she begged me to accept Her ring on my finger, so that I would be the husband of An Ondine, and to visit her palace with her, so that I would be King of the lakes. And then I replied that I loved a mortal woman, Sulking and peevish, she wept a few tears, Then broke into laughter, and vanished in showers of rain That drizzled white across my blue window pane.</p>	<p><i>Rejection of Ondine and the</i> <i>symbolism of the rain show-</i> <i>ers – “fertility” of the psyche</i> <i>Ondine is integrated into its</i> <i>natural environment – posi-</i> <i>tive effect of regression/the</i> <i>new progression, the better</i> <i>adaptation to conditions of</i> <i>an external and internal</i> <i>world</i></p>

has both positive and negative effects; a negative anima, including water spirits such as *Ondine*, provokes dark moods and can even lead a person to suicide (Jung, 1964/1996).

The young man in the poem resists the destructive power of the unconscious feminine side of his psyche through the experience of the Self archetype and of the father archetype. According to Jung, the archetypal image of Self – the transcendent factor of arrangement and unification of polarity in psychic life – is manifested in the most complete symbol of totality – a square (Jung, 1964/1996; Stajn, 1998/2007) presents in the form of the quaternion of elements that build the Ondine water palace on the triangle of fire, earth, and air at the very bottom of the lake – symbolically, at the very bottom of the unconscious. Here libido tries to reconcile and unify the opposite sides, the unconscious and conscious world of the young man's psyche. For, the position of the main actor – the young man is between the two opposite worlds – the inner, unconscious, seductive world of perfection of Ondine, and the outer, real-world of “one mortal”, as Ziglind Bruhn well remarked, the world of responsibility (Bruhn, 1997). Being that he loves a mortal woman, the young man actually faces conflict within himself, a conflict of his inner, unconscious destructive feminine side and acceptance of his own role in the outside world, which is symbolized by the appearance of Ondine's father, the water king, and his conflict with Ondine and her sisters – the other unconscious feminine traits of the young man. The water king is a symbol of the father archetype which, along with the mother archetype, represents the basic differentiation of the parental archetype in which the totality of opposites is united and preserved (Hark, 1988/1998); by the positive influence of the father archetype, manifested, among other things, in rationality and understanding, the young man managed to unite opposite sides in himself in the second, “conscious” part of the poem. Indeed, Ondine's rejection did not mean her complete disappearance, but she did integrate into her natural environment (Radeta, 2019). This moment is at the very end of the poem expressed by the rain, which in mythology often symbolizes the

“relationship” between heaven and earth, that is fertility (Jung, 1964/1996). Here is the “fertility of the psyche”, the positive effects of regressions that result in a new progression, i.e., the better adaptation to environmental conditions. By understanding and accepting his unconscious destructive feminine side, the young man experiences a psychological transformation; he becomes an emotionally mature man who truly understands the outside world, as well as he understands and accepts his nature and role in that world.

Described processes of transformation of the psyche of the young man are also realized by specific musical dramaturgy. It would seem, quite intentionally, that Ravel articulated *Ondine* in the specific and extensive sonata form (Table 4) because precisely the dramaturgical logic of that form corresponds to the symbolic logic of the program basis of the work. *Ondine* is a kind of “psychological drama” in which, generally speaking, a contrast, in general, is a contrast of psychological states or traits, development/plot is a struggle with oneself, and recapitulation with coda/resolution is a “reconciliation” of opposites, a kind of spiritual transformation. Moreover, the parts of the sonata form correspond to, *mutatis mutandis*, the parts of the dramatic structure of the poem (Table 3).

The exposition in the first two stanzas of Ondine's poem also corresponds to the exposition of the sonata form, the further exposition and the plot in the third stanza to the development, at the beginning of which the water king theme is given, while the recapitulation and code correspond to resolution in the last two stanzas, and represent “reconciliation” of opposites, a kind of spiritual transformation.

The roughly outlined dramatic plan of the composition is underlined, especially by harmonic means. Ravel, known as a composer “acrobat” and “magician” who easily handles all compositional difficulties (Lazarević, 2012), could not resist presenting the fantastic water kingdom also with “fantastic harmony”, “unreal” in terms of tonal-functional logic. Ravel uses almost all available harmonic means, activating, of course, the other musical components (rhythm, meter, melody, dynamics, color/regis-

Table 3. Bertrand's poem and Ravel's *Ondine* (English translation of the poem relies on Bruhn, 1997: 183, 185, and Radeta, 2019: 331; the left and right columns are created by M. L.).

<p><i>Epitaph/introduction to the fantastic story</i></p>	<p>.....I thought I heard A vague harmony that enchanted my sleep, And near me a scattering murmur similar to Songs interspersed with a sad and tender voice. Charles Brugnot – <i>Two geniuses</i></p>	
<p><i>Exposition "Ondine's song" to the young man, in the form of quotation, with a direct first-person address</i></p>	<p>"Listen! – Listen! – it's me, it's Ondine Who brushes with these drops of water The resonant diamonds Of your window lit by gloomy moonlight; And there is in her silken robe is the lady of the manor Contemplating from her balcony the lovely star-bright night and The beautiful, sleeping lake."</p>	<p><i>Exposition Introductory measure First subject/Ondine theme in Cis Transition in dis</i></p>
	<p>"Each ripple is a 'child of the waves' swimming with the current, Each current is a path winding toward my Palace, and my palace is built fluid, at the bottom of the lake, In the triangle of fire, earth and air."</p>	<p><i>Second subject/Ondine's sisters theme in gis/ in dis Development</i></p>
<p><i>Further exposition and plot</i></p>	<p>"Listen! – Listen! – My father beats the croaking water With a branch of green alder, and my sisters Caress with their arms of foam the cool islands of herbs, Water lilies and gladioli, or make fun of the sickly, bearded willow That is fishing with rod and line."</p>	
<p><i>Resolution</i></p>	<p>♦ Having murmured her song, she begged me to accept Her ring on my finger, so that I would be the husband of An Ondine, and to visit her palace with her, so that I would be King of the lakes. And then I replied that I loved a mortal woman, Sulking and peevish, she wept a few tears, Then broke into laughter, and vanished in showers of rain That drizzled white across my blue window pane.</p>	<p><i>Recapitulation First subject/Ondine theme in Cis/d minor "Second theme"/The young man answer, d minor Coda in C/in Cis</i></p>

ters, tempo, texture), to evoke the fluidity of the water kingdom, bringing the classical functional tonality to the limit of its effectivity: dissonant chords, frequently non-functionally treated and color-exposed, ranging from triads with added dissonance to eleventh chords and bitonal structures, resulting in bitonality; secondary degree chords, mediants, secondary dominants, sometimes with the unexpected resolution, and plagal and harmonic progressions at the distance of a tritone; modes, whole-tone scale, pentatonic, the pervasion of the major and minor mode.

The general direction of the harmonic progression has it's, not only dramaturgical but also symbolic meaning. Centralization or decentralization/unidirectionality or multi directionality, consequently, the ambiguity of the harmonic progression is also an indicator of the libido movement in the psyche of the young man. This is already manifested in the profiling of the themes in the sonata form, which are close to each other on the motive and character planes, contrasting only in the tonal plan, because they represent ondines, i.e., animas: the

Table 4. Sonata form of *Ondine* (this diagram form relies on Radeta, 2019: 334 and Radeta, 2011: 64–65).

Exposition (mm. 1–41)			
Intr. m.	First subject/Ondine theme (mm. 2–21)	Transition (mm. 22–29)	Second subject/Ondine's sisters theme (mm. 30–41)
in Cis	in Cis	in dis	in gis/in dis
Development (mm. 42–79)			
	The first phase (mm. 42–51)	The second phase (mm. 52–71)	The third phase (mm. 72–79)
	alternating of the motif of Ondine theme and Ondine's father theme	alternating of the motif of Ondine's sisters theme and Ondine's father theme	motive from transition
	in dis in C in A	in A in Cis in B in cis in gis in fis in e in Cis in h in fis	in C in Fis in gis
Recapitulation (mm. 80–87)			
	First subject/Ondine theme (mm. 80–83)	"Second subject"/The young man's answer (mm. 84–87)	
	in Cis/d minor	d minor	
Coda (mm. 88–91)			
Floscules of Ondine theme in C/in Cis			

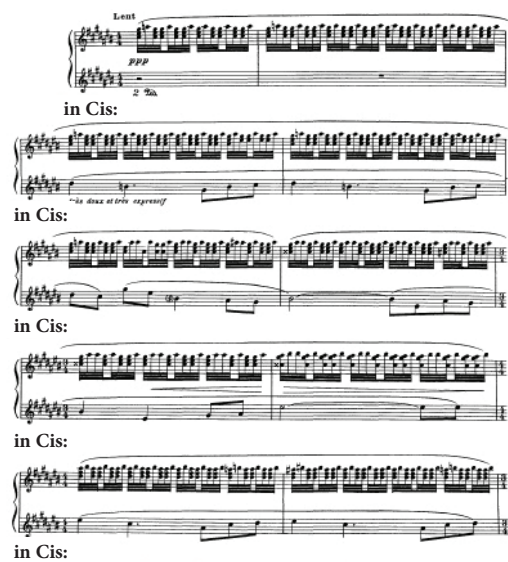


Figure 1. Beginning of *Ondine* theme, mm. 1–9.



Figure 2. Beginning of *Ondine*'s sister's theme, mm. 30–39.

first subject is the Ondine theme (Figure 1) in the basic tonal center in Cis, and the second subject, predominantly in the expected dominant tonal center in gis, is Ondine sisters' theme (Figure 2). Both themes have, in addition, the same harmonic logic: their dislocation, motion mainly in the sphere of the dominant, in regards to the initial tonic harmonic basis, symbolizes the disintegrating state of the subject; in other words, the destructive power of the feminine side of the young man's psyche is unconscious, it has not yet integrated into consciousness. The texture layer, which consists of harmonic figurations, here specifically of a tonic chord with the added sixths in a flow of demisemiquavers, is a mimetic factor (imitating the water of lake) that Ravel raises to the level of the constituent of the form (Radeta, 2019), the building material of one of the layers of the whole movement (except for four bars); consequently, this layer can undoubtedly be considered as a symbolic representation of the movement of libido itself.

This can be seen in the dramaturgical and symbolically important moment that represents the development, which is built a specific scene of "quarrel" between the father on the one hand, and Ondine and her sisters on the other. At the very beginning of the development, after the fragment of Ondine theme, water king theme is introduced (Figure 3), contrasting to both Online theme and Ondine's sisters' theme on many plans, first of all, on the tonal and register planes (it is given in the bass register in C versus the discant register and tonal orientation in

Figure 3. Beginning of development/the first phase, mm. 42–46, water king theme, mm. 45–46.

Cis/in gis of Ondine theme/Ondine's sisters theme); moreover, the very father theme rests on the harmonic connection of the ultimate kinetic opposites – triads at the distance of a tritone (c – e – g and g flat – b flat – d flat), which is symbolic in archetypal view as well, for the parent archetype, to remind, represents the united opposites.

That it is already assimilation of this archetype is evident in the fact that the Ondine theme is also profiled by a tritone. The entire first phase of the development is based on Ondine and father replicas on the harmonic axis of tritone relations, which in the second phase leads to a multilayer texture of father theme (Figure 4), further intensifying tritone harmonic orientation, and finally to the climax of the whole movement (Figure 5): the bitonal flow of harmonic figurations in maximum register distance of over four octaves.

Figure 4. Fragment from the second phase/development, multilayered water king theme, mm. 57–58.

Figure 5. Fragment from the second phase/development – climax, mm. 66–67.

After this “psychological breakdown”, the musical flow/libido changes the directive. It moves towards full integration of the extreme opposites realized in the recapitulation (Figure 6): the Ondine theme, analogous to father theme, is now multilayered, with the simultaneously exposed major and minor thirds over the dominant bass pedal, even with a diminished fifth of the dominant, because there is no longer a difference between consonance and dissonance, and the very end of the theme with the triads at the distance of tritone psychologically affects as a consonant.

Figure 6 shows three systems of musical notation for the recapitulation of the Ondine theme. The first system is in C major (labeled 'in Cis: D') and features a complex texture with simultaneous major and minor thirds and a diminished fifth. The second system continues this texture. The third system shows a tritone interval and dynamic markings like 'ppp' and 'pp'. Below the third system, there are performance instructions: 'd: t'.

Figure 6. Recapitulation, multilayered Ondine theme, mm. 80–87.

There is no doubt, therefore, that this is a new progression of libido, i.e., better adaptation to the environmental conditions, and the immediately following segment is the dramaturgical and symbolically most effective moment after a general pause, in the final reduction of the texture, the exposure of a one-part, almost entirely diatonic melody in D minor, related to Ondine theme in the motive aspect, represents the appearance of a young man and his negative response to Ondine. Symbolically, this conscious acceptance of the young man's own previously unconscious destructive feminine side of his psyche is also confirmed in the coda at the very end of the piece (Figure 7): the added sixth in the arpeggiated tonic triad has no longer dissonant sense.

Figure 7 shows two systems of musical notation for the coda of Ondine. The first system is in C major (labeled 'in Cis: D') and features a complex texture with simultaneous major and minor thirds and a diminished fifth. The second system continues this texture and is labeled 'in Cis:'.

Figure 7. Coda/the end of *Ondine*, mm. 90–91.

Conclusion

Finally, it may be concluded that the archetype of Self – the psychoid factor of arranging all polarities in psychic life, which has no a specific symbol in music – is however symbolically manifested in the general tendency of the musical flow towards the unification of opposites – consonance and dissonance in the most general sense; this, consequently, means the realization of one phase of psychic maturation/individuation. Observed from the perspective of Jung's concept of the psyche, the musical flow of the *Ondine* fully emblemizes the unconscious and conscious psychic processes of the main character.

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Ravel's *Ondine* From the Viewpoint of Bachelard's Essay on Water and Dreams

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Abstract

The theoretical platform on the basis of which *Ondine* – first movement of the program piano cycle *Gaspard de la Nuit* by Maurice Ravel, will be examined is Gaston Bachelard's interpretation and classification of the element of water – provided in the work *Water and Dreams. An Essay on the Imagination of Matter (L'eau et les rêves. Essai sur l'imagination de la matière)*. In this essay, the author provides psychological and psychoanalytical interpretation (of 'poetic images') of the element of water – the element that is also the subject of Ravel's aforementioned composition. Therefore, the aim of this paper is, following Bachelard's (psycho)analysis of the water element, to explore the meaning of the given 'images' of the water element in Ravel's *Ondine*. Then, it will be pointed out in what way, more precisely, by which compositional methods and musical-expressive means the author interprets the water element and creates (bearing in mind Bertrand's literary 'image' of *Ondine*) now a specific music 'image' of water fairy *Ondine*. The aforementioned problematization will be considered applying analytical, comparative and interpretative methods.

Introduction

In this paper, on the bases of philosophical, psychological, and psychoanalytic interpretation of the element of water of Gaston Bachelard that is a part of his work *Water and Dreams. An essay on the imagination of matter*, the peculiarities and meaning of the given 'image' of the water element in Maurice Ravel's work *Ondine* will be explored.

When it comes to this kind of theoretical approach to music, I would like to emphasize that I was influenced by the research done by the eminent French author Michel Imberty who, among other things, deals with the perception of musical style from a psychological and psy-

choanalytic perspective and who, when examining Claude Debussy's style in *Préludes* for piano, invokes and relies precisely on Gaston Bachelard and his notion of *material imagination* situated in the work *Water and Dreams* (Popović Mladenović, 2009: 306).

I would also like to point out that the French authors, Gaston Bachelard and Maurice Ravel, lived and created at the end of the 19th and the beginning of the 20th century – when research on the elements, in the sense of immediate phenomenal reality, elemental processes/changes in nature, psychological interpretation of natural phenomena had intensified and evolved – both in the sciences and in the arts (especially, when it comes to art, in symbolism in literature, impressionism in painting, but also in music from the end of the 19th and the beginning of the 20th century). Taking into account all of the above, but also the fact that Gaston Bachelard in his essay on water and dreams deals in detail with the problematization of the element of water, the *water psyche*, the *type of intimacy* the depth of water suggests, the *water morality*, as well as the fact that *Ondine* is not the first Ravel's work concerning the said element, but is continuing on a line of works such as *Water Games (Jeux d'eau)*, *A Boat on the Ocean (Une barque sur l'océan)* – in which the sounding material manifestation of a water element is noticed, in which this element is present in a very specific way, it seems well founded and very important now to directly investigate and understand the relationship between Bachelard's interpretation of the water element and the musical transposition of the same element in Maurice Ravel's piano piece *Ondine*.

Bachelard's Essay on Water and Dreams

One of Gaston Bachelard's main areas of interest and research is the 'space' of imagination. The author is interested in the way imagination works through (literary) art for he believes that what remains hidden to the logic and reason of science, still what is essential for the development of the scientific mind and spirit, is unrestricted and accessible in the field of (literary) art (Zwart, 2019). Bachelard states that scientists, in their research, should also pay attention to the 'genres' of imagination – primarily literary genres (poetry and novels) – for they are for science what dreams and daydreams are for rational consciousness – a window that allows access to the unconscious (Zwart, 2018: 17). In this regard, in order to explore both the conscious and the unconscious 'space' of imagination (through literary art), the author approaches the ontological, phenomenological and hermeneutical understanding of poetic 'images' (Bašlar, 1982, 1996; Башлар, 1942/1998). More precisely, he studies the content of the poetic 'image' before it turns into expression (into a completed written work), contemplates about the origin, root of that poetic 'image' (in imagination) and reaches the assumption that every imagination/concept (ion)/'image' has its root in existence within a substance, that is, within matter. In other words, what the reality of each (imaginative) 'image' is, what connects them, what the 'seal of resistance' in imagination (in relation to psychological development – an old man in a young child and a young child in an old man) is, including what constant and universal in the activity of the imagination (which does not evolve) is – are, in fact, four elements: fire, water, air, and earth. The author concludes that "when it comes to the order of imagination, it is possible to establish a law of four elements that sorts out different material imaginations depending on whether they are related to fire, water, air or earth" (Bachelard, 1983: 3). Simply put, he notes that each element, in accordance with its own substance and rule, has its own poetics that transfers to the works of art. In this sense, we will focus in this paper on Bachelard's interpretation of the

material imagination related to the element of water, in order to, following the author's (psycho)analysis of this element, analyze the given 'image' of water in Ravel's *Ondine*, and then uncover and point out the peculiarities of the new musical language, that is, musical poetics of the element of water.

At the very beginning of its essay on water and dreams Bachelard emphasizes the difference between the *formal* and *material imagination*, that is, the imagination that gives life to the formal/surface/visible cause and the one that gives life to the material/deep/intimate cause (Bachelard, 1983: 1). Namely, the author points out that these two imaginative powers cannot actually be completely separated because only after studying the formal, surface 'image' (of poetic works), after removing all the suffixes of that visible 'image', the 'image' being shown, can one uncover and study that hidden 'image' that is at the root of imaginative power. The author also highlights that these surface water games are more an ornament of the poet's landscapes than the basis of his reveries, and states that beneath these surface poetic 'images' of water (beneath the *formal imagination*), lies a series of deeper and more persistent 'images' (of *material imagination*) that reveal quite a certain type of intimacy different from the one suggested by the depth of fire or earth (Bachelard, 1983).

What often lies at the heart of surface 'images' of water in poetic works or, as the author calls it, in *surface poetry of reflections* is a form of narcissism. Bachelard refers to the surface 'image' of water as Echo, and what the object of reflection is, i.e., what is reflected in water is Narcissus (Bachelard, 1983: 21). He states – "what Narcissus sees in the water is the Echo. Echo is not a distant nymph. She lives in the basin of the fountain. Echo is always with Narcissus. She is he. She has his voice. She has his face. He does not hear her in a loud shout. He hears her in a murmur, like the murmur of his seductive seducer's voice. In the presence of water, Narcissus receives the revelation of his identity and of his duality; of his double powers, virile and feminine; and, above all, the revelation of his reality and his ideality" (Bachelard, 1983:

22–23). Thus, it is an idealizing narcissism. In addition to narcissism, Bachelard also mentions sublimation, and points out that sublimation is not always the denial of desire; it does not always act against urges. On the contrary, sublimation may also exist for the sake of a certain ideal, Narcissus no longer says “I love myself the way I am” but “I am the way I love myself” (Bachelard, 1983: 23). Specifically, the author also draws attention to the fact that the eye that observes must be beautiful in order to see the beautiful. In other words, the eye has the will to see its own visions. Therefore, observation, as well as seeing certain images, is a will. Interestingly, the author mentions this even when talking about deep images of water (which are related to material imagination). Bachelard states that in deep observation, observation of deep images, the subject becomes aware of its own intimacy, but “before deep water, everyone chooses their own interpretation – one can see a still bottom or a stream; one has the ambiguous right to live with a sailor or with a new breed of diligent fairies, wonderful and conscientious. And the water fairy is the guardian of the deception, holding all the sky birds in her hand” (Башлар, 1942/1998: 71). Thus, if deep images reveal those intimate images and everyone chooses their own interpretation, it means that they choose to see themselves, which seems to be the deepest and quietest intimacy.

Superficial poetry of reflections is often accompanied by meticulous sexualization, that is, an infrequent portrayal of nymphs and naiads. The author emphasizes that in poetic images, the being that comes out of the water is a reflection that materializes gradually, it is an image rather than a being, it is a desire rather than an image. In addition, the author stresses that the image of the swimmer with bright reflection in the water is wrong for the swimmer is blurring the water, breaking her own image, at that moment, there is no reflection (Bachelard, 1983: 33). Imagination, therefore, must complement reality, it then realizes one desire (Bachelard, 1983: 33–35). If our poetry of reflection is correct, the image of a being from water already indicates a certain desire. The being sings as a desire, a nymph song is yet an intimate desire.

Bachelard then highlights that water is such a substance that it can absorb desires and confessions of the dreamer, but once it absorbs his confessions, it becomes slower, melancholic, quiet (Башлар, 1942/1998: 74–75) and then there, in that “silence”, on the other side of the surface/visible ‘image’, a deep ‘image’ – (objective) intimacy – objective view of oneself is revealed.

What is also interesting and what the author notes in the many poetic works analyzed is that water ‘images’ almost always have feminine qualities, except in those intimate moments/‘images’ when each chooses their own interpretation and in moments when the water ‘images’ are strong – it then acquires masculine qualities (Башлар, 1942/1998).

Introduced Bachelard’s (brief) psychoanalysis of certain ‘images’ of the water element greatly helps the interpretation of the ‘image’ of water in Ravel’s *Ondine*.

Analysis of Ravel’s *Ondine* from the Viewpoint of Bachelard’s Essay on Water and Dreams

For the textual template of the work, Ravel chose Aloysius Bertrand’s poem of the same name – *Ondine*. Based on the very title, and then on the content of the poem itself, it is clear that the element of water permeates both poetic and musical work – since it is the ‘world’ of *Ondine* – the water fairy/seductive nymph.

After listening to Ravel’s piece for the first time it becomes quite clear that the composition suggests a ‘space’ of the water element. The composer, through a fluid, continuous accompaniment in thirty-seconds/demisemiquavers, compacted/condensed in some places and stretched in others, present from the beginning to the end of the work, creates this sounding material manifestation of the water element (Figure 1).

Namely, that fluid, continuous, constantly present accompaniment seems to be the surface ‘image’ of the water that Bachelard speaks of. At the beginning of Bertrand’s poem *Ondine* describes a starry night and a dormant lake while Ravel’s composition begins with a pedal on the tonic triad given in demisemiquavers – where

the continuous vibration of a tonic chord interrupts the popping into the added sixth as if the tonic chord given in the demisemi-quavers represents that vibrancy of the water, that is, of the lake, and then popping into the resolved, small sixth represents the reflection of stars in

Figure 1. Maurice Ravel, *Ondine*, *Lent*, (water 'space' and Ondine's melody) mm. 1-9*.

the water (see Figure 1). Hence Ravel begins the composition by representing the 'space' of the action – the space of the water, i.e. the lake (see also Eccles, 2004: 12). Specifically, Bachelard, on the basis of numerous analyzes of poetic works, reveals that these surface water 'images'/games are more an ornament to the poet's landscapes than are the basis of reveries. And this seems to be exactly the case with Ravel's composition, and it is clear at the very beginning of the piece – since after this introduction, after portraying the night surface water landscape, the composer introduces Ondine's melody very expressively. In other words, he presents the protagonist –

suggesting that surface 'images' of water are not the essential basis neither of the poet's nor of the composer's work, and that beneath such 'images' of water those more permanent 'images' that will show the true basis of the subject's imagination/thoughts about water, or as Bachelard calls it, the basis of the *water psyche*, should be revealed.

Ondine's melody (from m. 2), compared to the repetitive accompaniment in demisemi-quavers, is more stable as it is given in quarters, extended/dotted quarters and eighths, and its presentation is therefore very clearly perceived. Ondine is represented by a round, circular, gentle melody in the soprano-alto register in *ppp* dynamics, indicating *very sweet and very expressive (très doux et très expressif)*. Thus, the musical (sound) 'image', as well as the poetic one, is, in a way a seductive water fairy. It seems that even in this segment of the music flow, one can read the aforementioned Bachelard's interpretation that the being coming out of the water is an image rather than a being, it is a desire rather than an image. Simply put, Bachelard's psychoanalysis suggests that the image of the seductive water fairy is more a reflection/Echo of the subject's desire than it is the main subject of the action. This is also supported by his belief that a being emerging from water gradually materializes for it has no reflection in the water, it breaks and blurs its own image, and then the imagination completes, creates, materializes the image, that is, as Bachelard states, the imagination then fulfills a desire – hence, the subject's desire is to see Ondine – the seductive water fairy. This Bachelard's interpretation also underlines the musical flow of Ravel's composition, since there is no place in the composition where we can see the reflection of Ondine's character, that is, the reflection of the Ondine's melody in the water (as, for example, Claude Debussy portrays in his piano prelude *Ondine* – see Simonović, 2018: 266–277). On the contrary, in Ravel's work, the layer/line of Ondine's melody in music facture seems to contradict/resist to what "signifies" the element, that is, the space of water. In other

* All figures in the paper are downloaded from the website: [https://imslp.org/wiki/Gaspard_de_la_nuit_\(Ravel%2C_Maurice\)](https://imslp.org/wiki/Gaspard_de_la_nuit_(Ravel%2C_Maurice)). It is Durand and Fils (1909) publication.

words, Ondine's melody, like the aforementioned accompaniment in demisemiquavers, moves in the domain of $\text{in } C\#$ major, however, looking vertically, the tones of Ondine's melody are, at the moment of their appearance, in a dissonant relationship with the accompaniment representing the flow of the water element. It can even be noted that its melody is given on the base of the tone d , while the fluidity of the water/lake element is represented by the vibrating, repetitive rendition of the tonic triad – $c\# e\# g\#$. Thus, not only is there no reflection of Ondine in the water but the melody does not seem to belong to what the flow, the space of water is – underlying the belief that she is the reflection/desire/Echo of the subject – the mortal.

In Bertrand's poem, *Ondine* then states that each wave is an elf swimming in the water and each stream is a path leading to her palace, and her palace is fluidly built at the bottom of the lake, at the triangle of fire, earth, and air. Indeed, the music flow that follows, after the part previously discussed, the waves line up (from m. 17, Figure 2), that is, the composer, by creating passages and arpeggios from one layer of the facture to another, from one hand to another and vice versa, creates sound waves.

Figure 2. Maurice Ravel, *Ondine, Lent*, ('image' of waves) mm. 16–23.

Also, in this (and further) part of the music flow, there is no stable tonal base, no tonal center, the harmony moves in the areas *in c#* minor, *in d#* minor, *in g#* minor, but the music flow just passes through these areas and continues, and we get a weightless feeling, as if they were waves that could not be caught, that really had no strongholds (Radeta, 2019: 201–202). What is also interesting is that Bachelard, when interpreting images of deep water in poetry, discovers a castle built by four great builders, four great masters of oneiric elements (Башилар, 1942/1998: 71) – and Bachelard (corresponding to Bertrand's poem) also seems to be referring here to a fluid structure (as he dwells upon images of deep water) made of fire, water, air, and earth. All of this can be “read” in Ravel's composition as well – the aforementioned (sound) waves slowly lower the musical flow, which is primarily in soprano and alto, but now slowly take over the tenor and bass sections – so that at one point (in the development part of the composition) in m. 45 all layers of facture (there are three layers) would “occupy” the bass section – that being the case as if it were the very bottom of the lake (Figure 3) where Ondine's palace “rests”. Numerous music analyses of Ravel's *Ondine* suggest that the line of the middle layer (in m. 45) is actually the melody of Ondine's father – since in the further course of Ravel's composition this theme (the ‘theme of Ondine's father’) and Ondine's theme alternate, contradict each other and almost struggle for “dominance” – which corresponds to one interpretation of Bertrand's poem saying that Ondine's father opposes her relationship with the mortal (Radeta, 2019: 203–204).

However, following Bachelard's (psycho)analysis of the water element in which Bachelard points out that the ‘images’ of water almost always have feminine qualities, except when it comes to cruel, strong, powerful waters – Bachelard highlights that water then takes on masculine features, masculine traits, that is, indicates a male identity (Башилар, 1942/1998: 23). This

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Figure 3. Maurice Ravel, *Ondine, Lent*, mm. 45–46.



Figure 4. Maurice Ravel, *Ondine, Lent*, ('image' of violent water/male identity) mm. 66–71.

seems to be in line with Ravel's composition because the whole time we see a female character – Ondine – who is represented, as we mentioned above, by a gentle, soft, quiet melody, and from the moment when all the parts are in the bass when the bottom of the lake is represented, the music flow ascends and an image of violent water is created. From the bass, the music flow moves upwards towards the high registers and goes up to c^4 , the ascent is also achieved in a dynamic sense – the dynamics range from p via mf and f to ff (while the dynamic range of the previous music flow was $ppp - p$), and a more frequent harmonic progression of *in C major, in A major, in C# major, in B \flat major, in e minor, in b minor*, also takes place. Indeed, it truly is an 'image' of violent water that points to a male identity, a male trait (see Figure 4).

Still, this image does not have to represent the anger and fury of Ondine's father/king of the lake. There is no explicit reference in Bertrand's poem neither to the anger of the father nor to the argument between him and Ondine. This alteration of Ondine's melody, that is, of the female melody and the male melody, can also be an internal struggle of the subject, a struggle with oneself. In other words, both Bertrand's poem and Ravel's *Ondine* appear to correspond to Bachelard's interpretation of Narcissus and Echo – in which Narcissus sees Echo in the image of water, but that Echo, as Bachelard points out, is not some distant nymph, she lives in the spring. Echo is always with Narcissus. She has his seductive voice. She is him. More precisely, she (we now refer to the musical 'image' of Ondine) is his deep, inner, intimate desire, her round, circular, seductive melody is the appearance of his desired seductive melody, Ondine's constructed image is his Echo, his inner image. The sad thought crystallizes more and more like the flow of Ravel's composition is followed – in the repetition, after repeated presentation of Ondine's melody, a complete reduction of the structure follows, and a four-measure (instrumental) monodic recitative is presented (see Figure 5).

What is truly very specific and interesting is that it is only during these four measures that the fluid, continuous accompaniment, that "signifies" the space of the lake and water, is interrupted. This moment of musical flow seems to correspond to the image that Bachelard points to when he says that only after all the suffixes of the surface 'image' of water have been removed,



Figure 5. Maurice Ravel, *Ondine, Lent*, mm. 83–87.

that deep, intimate ‘image’ – the one that underlies the imagination/thoughts of the water/water psyche – is revealed. More precisely, during these four measures, there are no “signifiers”, no indication of the element of water, no superficial ‘images’ of water – suggesting that this four-measure ‘image’ is that of a deep/intimate ‘image’ of a mortal. Even Bachelard himself points out that water is such a substance that it can take in the desires and confessions of a dreamer, but then it becomes melodic, quiet, slower and that is where that deep, intimate image is revealed – this (melancholy, quietness, slowness) fully describes the recitative four-measure melody. Besides, we can notice the close proximity/similarity of his melody to the Ondine’s melody, and it now becomes clear why from the very beginning her melody resisted, contrasting with the line that represents the element of water – because from the very beginning she has been an image/reflection/Echo of the mortal. It should also be mentioned that this reduction of facture followed the strong image of water and climax, as well as the re-rendition of Ondine’s melody (in the repetition) – as if (during the strong ‘image’ of the water) the subject struggled with what the Ondine’s melody represented, the call of the seductive water fairy, with desire, but then sublimation ensued – the one of which Bachelard also speaks of. Sublimation, which is not the denial of desire, which does not act against the urge, it is the acceptance and transformation for the sake of certain ideals – for Narcissus no longer says “I love myself the way I am” but “I am the way I love myself”, thus, for the sake of ideals, for being the way he loves himself, he rejects Ondine because he loves a mortal – cross and angry. In the final ‘image’ (code) of the composition, the “signifier” of the water element is re-activated, but now both voices/both lines of the facture/both ‘images’ are uniform, harmonious – there has been a unification, more precisely, reconciliation, sublimation of Narcissus and Echo, the subject and its (internal) reflection.

Conclusion

We have shown that on the basis of Bachelard’s psychoanalysis of ‘poetic images’ of the water element the meaning of a given ‘image’ of

the element of water in music composition (in this case Ravel’s *Ondine*) can be both interpreted and revealed. Besides, what Bachelard points out seems to be proven (by this paper) – that the poetics of a piece, in this case, musical poetics, receive the properties/peculiarities of the material essence with which it actually resonates all the time. More specifically, the analysis showed that fluidity prevailed in all the parameters and elements of the composition – we noticed that even the pedal is not used as static, in long note values, but as repetitive, vibrant. Fluidity is also reflected in the harmonic flow in recurrent (often polar) shifts of tonal areas, in frequent shifts/changes of meter, registers, in passages and arpeggios which overflow from one layer of the facture to another, from one hand to another and so on. Therefore, every parameter of composition takes on the characteristics of the fluid, flowing, transient, passing – in other words of everything “symbolizes” the element of water.

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Thematic Symposium 2

**Rediscovering Music Universe of Claude Debussy's *Préludes*,
organized by Tijana Popović Mladenović**

Rediscovering Music Universe of Claude Debussy's *Préludes*

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Abstract

This paper will offer a possible interpretation and understanding of the Claude Debussy's *Préludes* as a compendium of artistic (music and painting impressionism and symbolism), philosophical (phenomenology), psychological (gestalt), theoretical (synaesthesia) and aesthetic tendencies of *fin de siècle* (Popović Mladenović, 2009). Thus, in the first part of this paper, a musicological interpretation of Debussy's *Préludes* will be offered as a complete music-dramaturgic flow, as well as the imaginary paint art exhibition. Criteria for this interpretation were as follows: a function that each prelude has in a cycle as an integrative entirety, multiple network relationships between the preludes, Debussy's *signatures* at the end of each prelude, as well as dominant fundamental element (water, air, earth, fire, and human / the fifth element) that each prelude is connected with (Popović Mladenović, 2008). The second segment of the paper will point out to the theories of synaesthesia and artistic synaesthesia. Thus, the convergence of arts, especially music and painting, will be discussed in synesthetic terms, through their primary denominators – sound and color (Van Campen, 2010; Cytowic, 2018). Those ideas of 'seeing' music in pictorial terms and 'hearing' paintings according to musical laws, will be cross-checked with the results presented in the third part of this paper based on empirical qualitative research. Non/overlapping points will be pointed out by crosschecking survey results and musicological-theoretical conclusions (Popović Mladenović, Bogunović, Perković, 2014). The aim of this research is about artistic 'crisscrossing' – potential *correspondence* areas between music and paint art (Rubin, Mattis, 2018), by analyzing the music-dramaturgic flow of Debussy's *Preludes* which also has a *logic of pictorial*. The main contribution of the paper is to rediscover the musical universe of Debussy's *Préludes* through crisscrossing of disciplines: musicology, psychology (*Gestalt* and synaesthesia), and philosophy,

with a theoretical and empirical approach. Likewise, this symposium represents a unique contribution to overall literature on Debussy's *Préludes*, considering the diversity of approaches.

The Idea of Debussy's *Préludes* as a Cycle and Imaginary Paint Art "Exhibition"

The two separate 'livres' of *Préludes*, written between 1910 and 1913, represents the culmination of Claude Debussy's work in the field of piano music. In addition, these two 'livres' are the purest representation of the composer's whole music universe, as well as the possibility of its pictorial (and/or dreamlike imagery, fantasy-imaginative) *readout* in listener consciousness. Namely, the cycle of 24 preludes, mostly based on visual 'facts' or 'immediate data' of visual sense – but not as a mere sensation or impression of reality, instead of as feelings in response to the external world – which is indicated by their titles that appear at the end, in parentheses, witnessing of composer's intention that free visual associations that may emerge during the listening of these miniatures get their concrete definition in the end. In that sense, titles at the end of each prelude could be considered "a signature", something that inspires, make no statements and set no limits – "they lead... into an ambiguous world where there is no cause and no effect" (Nochlin, 1966: 194).

Nevertheless, *Préludes* are not isolated 'case' in the composer's opus. Debussy calls his compositions pictures, sketches, prints, arabesques,

masques, studies in black and white, and so on. Judging by his works, and by their titles, or better say signatures, Debussy became, or he is from the very beginning, “a painter and that is what he wants to be”, as René Peter, one of the composer’s closest friends of the 1890s, noticed. According to Peter’s words, “it is his [Debussy’s] delight to paint in music” (Roberts, 1996: 19–20). Before we get to that point, we shall focus on the *Préludes* as a cycle with a very specific musical dramaturgy.

Since each prelude represents a well-balanced entirety, it could be performed separately, which is the most common case. However, since each prelude has its place in the cycle, its integral performing presents the fulfillment of the composer’s global intention. The reason why we consider that the 24 miniatures together form the cycle lies in the fact that several integrative factors relate to different musical components and their elements throughout the whole work and affect the integral perception of *Préludes*. In other words, these integrative factors derive from Debussy’s uttermost specific compositional principles and compositional procedures, as well as compositional-technical solutions based on which a full musical-dramatic flow is being built, in terms of:

- *shaping the entire musical flow* on principles of *building* a structure out of fragments, with carefully measured and distributed contrasts;
- *textural organization* – mostly three-layered texture where one layer represents melody, often in short strokes, fragments; second is accompaniment given as ‘flat’/‘solid’ chords or as broken/arraggiated chords; the third layer appears as a pedal tone. Not so seldom, the three-layered texture is given as three staves (2^e Livre);
- *the specific type of melodic material* based on various scales and their potential mutual combinations; thus, it is possible to notice melodies based on diatonic scale/major and minor scale, chromatic scale, anhemitonic pentatonic scale, diatonic (Gregorian/church) modes or a whole-

tone scale, and on their most diverse ‘colored’ mixtures;

- *harmony solutions* – the parallel movement of consonant or dissonant chords, chromatic/mediant relationships (between chords a major/minor third apart), as well as, a saturated harmonic language with the use of more complex harmonies and chromatics, all in the function of color;
- dynamics, agogics, articulation and/or ‘character’ of color;
- the specified components of temporal organization, that is, the ‘breathing’/‘waves movement’ of the musical flow, such as tempo, the rate of the unfolding of musical time, decelerations and accelerations of ‘color’.

All aforementioned musical components, along with various modes of motivic and harmonic interconnectivity, are involved in the process of *Préludes* linking, their integration or disintegration, aggregation or segregation, convergence, or divergence in the figurative sense, that is, different ways of grouping individual preludes.

On macro-level of this particular cycle, there are entireties, i.e., phases in the unfolding of musical flow intensity that represent smaller parts/waves with its dramaturgy, which encompasses development, an increase of musical flow intensity, its decrease, anti-climax or episode, and at the end reaching climax or appearance of epilogue. The exciting thing is that the number of preludes, which group into waves, has regular growth.

Thus, the first ‘book’ is divided into three waves: first of which is comprised of first three preludes – 1. *Danseuses de Delphes*, 2. *Voiles*, 3. *Le vent dans la plaine*; second wave of next four – 4. *Les sons et les parfums tournent dans l’air du soir*, 5. *Les collines d’Anacapri*, 6. *Des pas sur la neige* and 7. *Ce qu’à vu le vent d’ouest*; and the third of last five preludes – 8. *La fille aux cheveux de lin*, 9. *La sérénade interrompue*, 10. *La cathédrale engloutie*, 11. *La danse de Puck*, and 12. *Minstrels*.

Musical flow of the first ‘book’ is followed by second ‘book’ that is divided into two larger

waves. First wave is comprised of first six preludes grouped into two smaller waves – first half-wave 1/13. *Brouillards*, 2/14. *Feuilles mortes*, 3/15. *La puerta del Vino*, and second half-wave 4/16. *Les fées sont d'exquises danseuses*, 5/17. *Bruyères*, 6/18. *Général Lavine – eccentric*. Second wave consists of last six miniatures – 7/19. *La terrasse des audiences du clair de lune*, 8/20. *Ondine*, 9/21. *Hommage à S. Pickwick Esq. P.P.M.P.C.*, 10/22. *Canope*, 11/23. *Les tierces alternées*, and 12/24. *Feux d'artifice*.

In that way, one could sense, musical flow *decomposition* is performed in ever-wider strokes, from the initial grouping of three miniatures until the final joining of six. If both 'books' are viewed as a whole, then the first 'book' and the first wave of the second 'book' could be interpreted as a constant musical-dramaturgic development with vacillations in its intensity (sort of 'ups' and 'downs' characterized by anti-climax, episode, epilogue). The last six preludes of the second 'book', also as a separate segment, form some sort of *Grand Finale* for the entire cycle.

From the perspective of more profound comprehension of Debussy's poetic and aesthetic but also his particular thinking through that music "by its very essence... consists of colors and rhythmicized time" (Botstein, 2001: 160), it could be understood to what extension pictorial element is a fundamental factor of composer's opus, that is the music of *Préludes* themselves. Namely, Debussy's comments on the nature of music return again and again to visual metaphors and analogies appropriated from the contemporary discourse on developments in modern art. In that sense, for example, Debussy 'resonates' with the aesthetics and practices of: Whistler (as the author of *mystery*), Turner (as the author who turned the temporal into fantasy and evoked a dreamlike act of the imagination), pre-Raphaelites, impressionist and post-impressionist painters, the symbolist painters, especially Redon (on whose canvases dreamlike imagery with arresting colors and a sense of the ethereal prevail in integrated, organic compositions in which the elements of color, line, tone, and image relate as unstable elements to one another), as well as the symbolist poets, among others, Mallarmé and Laforgue (according to

him painting becomes precisely musical in its role as the visual representation of the passage of time), etc. Aim and outcome of this part of *exposé*, based on the concept of *Préludes* as a cycle, that is, ways of how individual preludes are organized and mutually correspond forming climaxes and anti-climaxes of this unique musical unfolding in time, point out possibilities of their interpretation as a very explicitly conceived, unique paint art exhibition that would reveal resonating poetic characteristic as well as aesthetic points of view of artists mentioned above. Namely, taking into consideration Debussy's 'preludic' individual and group musical portraits, musical winds, water worlds, fragrances, musical fragments of history, time and landscapes, musical genre scenes, etc., which depend on their pictorial, associative features unequivocally take over real functions of different 'punctuation marks' in segmentation of cycle as an integrative entirety, we searched for one of the possible envisagement of *Préludes* as an imaginary paint art exhibition in gallery space that rises from the interpretation of this cycle as a complete music-dramaturgic flow because it is, one could say, in its crucial sense guided by the logic of pictorial. Criteria for arranging imaginary paint art exhibition in gallery space were as follows: a function that each prelude has in a cycle as an integrative entirety; multiple network relationships between the preludes; Debussy's *signatures* at the end of each prelude; as well as a dominant essential element that each prelude is connected with.¹

Debussy's *Préludes* in the Realm of Synaesthesia – "seeing music"/ "hearing painting"?

Préludes are "pregnant with synesthetic potentialities" (Cavallaro, 2013: 48). Thus, com-

¹ We identified groups of preludes that correspond to *Water*, *Air*, *Earth* and *Fire*, but we also included a group that overlaps basic *four elements*, and is 'pointed' toward *Human*, that is *the fifth element*. It is expressed through *singing* and *dancing* as parts of genre-scenes that include musical portraits of individual or group.

prehension of synaesthesia may help us to ‘see’ music through the *logic of pictorial*, to ‘hear’ paintings according to musical laws, and to find their hidden or not-so-obvious interconnections, those that we usually explain in terms of metaphor.

Term *synaesthesia* (which etymological root is in the ancient Greek synthesis of two terms – σύν [syn], “together”, and αἴσθησις [aisthesis], “sensation” – in literal meaning “to sense together”, which was scientifically defined at the end of the 19th century, designates a specific neurological state in which different stimulus activate two or more senses at the same time. One of the most prominent researchers in the domain of synaesthesia, Richard Cytowic, proposed a more comprehensive definition of this phenomenon, so according to him “synaesthesia is a hereditary condition in which a triggering stimulus evokes the automatic, involuntary, affect-laden, and conscious perception of a physical or conceptual property that differs from that of the trigger” (Cytowic & Eagleman, 2009: 112). Till today, scientists recognized a myriad kind of synaesthesia (that describes the phenomenon of combining color-taste, color-scent, audio-motor, sound-odor, temperature-color, taste-touch, touch-smell, vision-touch, etc.) However, one of the most usual and in our context the most important is *color-hearing* or *chromesthesia*, when sounds/music initiate specific colors/lights in the inner mind of a synaesthete, but there exists the reverse variant.

However, before all this precise definitions and categorization of synesthetic experiences, there were different researchings, experiments and writings throughout the history about color-sound connections and sensory correspondences (just to mention several: Isac Newton’s theory of 7 different colors connected to 7 tones of C-major scale (in his *Optics*, 1704), Johan W. von Goethe’s in *Theory of Colors (Fabernlehre*, 1810), Louis Bertrand Castel’s color harpsichord (*clavecin oculaire*), Alexander Wallace Rimington’s “Color-Organ”, etc. However, probably initiated by a significant change in music that took place at the end of the 19th century, when the earlier ‘primary’ tone components – pitch and

duration (rhythm), became ‘secondary’ – gave its place as a critical role in the articulation of a structure of composition to intensity (dynamics) and, especially, to color (instrumentation, articulation). This change, even more, encouraged the artist to experiment in color-sound synesthetic correspondences, that will be continued during 20th and 21st century, which, eventually initiated a shift in a synesthetic researchings in the second half of the 20th century, when neurologists and psychologist have started investigating artistic practices, individual poetics of those composers, painters, poets who integrated synesthetic experiences in their opuses. That is the reason why many contemporary scientists, in the domain of synaesthesia, tried to differentiate *neurological* or ‘real’ *synaesthesia* and *artistic synaesthesia*. D. Cavallaro explicitly argued that it is essential to distinguish between *actual synaesthesia* and *artistic synaesthesia* (Cavallaro: 2013). The former is involuntary and biological and is, therefore, an integral part of a person’s way of perceiving the world at all times and cannot be produced in non-synaesthetes. The latter consists of the deliberate construction of cross-sensory effects by artists who deploy perceptual blending as a means of communicating their vision. The keyword that is frequently used to differentiate artistic or cultural synaesthesia from neurological synaesthesia is a metaphor.

And music in general, as the most abstract art form, as a nonverbal but formally complex ‘object’ is hard to write about, usually needs a metaphor for its verbalization. However, the metaphor shouldn’t be understood merely as a rhetorical device. Simon Shaw-Miller (2014) mentioned that “metaphor is not just a matter of language, that is, of mere words... On the contrary, human thought processes are largely metaphorical” (Simon Shaw-Miller, 2014: 13). Cytowic (2018) makes a difference between synaesthesia used in the art world and real or developmental synaesthesia, by putting conventional metaphor at a low end of the multidimensional spectrum (syntagma for synaesthesia), experiences like imagery inspired by music in the intermediate levels, and the upper-end prototypes are perceptual synesthesias. Van Campen

(2010) in *The Hidden Sense* explains that “synaesthesia does not really fit into this description of metaphors” (Van Campen, 2010: 91) and as a link between metaphor and synaesthesia he proposed a syntagma *synesthetic metaphors* for the particular category of metaphors – figures of speech in which meanings are transferred from one sensory domain to another, that matches a feeling for a nonsynesthete, and that might be an accurate perception for a synesthete (Van Campen, 2010).

In this context, the writings of French philosopher Maurice Merleau-Ponty in his classic book, *The Phenomenology of Perception (Phénoménologie de la perception, 1945)*, are worth mentioning. According to him, synaesthesia and synesthetic metaphors have a common ground in the unified preconscious perception. However, to talk about synesthetic perceptions, people use language and metaphors that reflect the current theory of the five senses, and it separates the formerly complete experience into multiple sensory perceptions according to the distinct sensory domains of hearing, vision, touch, and so on (Corrêa, 2015).

The Austrian-American psychoanalyst Paul Schilder wrote in 1935: “But we should not forget that every sensation is generally synesthetic. This means that there is no primary isolation between the different senses. The isolated sensation is the product of analysis. Perception is synaesthetic” (Schilder, 1935, as cited in Shaw-Miller, 2013: 15).

And indeed, sound-sight synaesthesia is about more than just color. Similarly, music interaction with visual arts is attested to by their use of shared concepts and terminology. Besides color, there are tone, harmony, rhythm, contrast, dynamics, gradation, polyphony, scale, texture, structure, form, etc. All those terms can be related to synesthetic color-hearing perception. Acoustic and musical properties to which synesthetes usually respond are pitch, musical key, timbre, chords, melody, and volume.

By manipulation of pitch, the composer can alter the intensity and contrast of the synesthetic experience – higher tones are usually recognized as lighter than low ones (thanks to the

anatomical organization of the brain’s primary hearing cortex which is tonotopic; Cytowic, 2018), melodic intervals may also have bright-dark values – ascending melodic intervals usually evoke lighter stimuli, and darker incentives go with descending ones. The wider the melodic interval, the more gradations of light and dark might be precepted, as well as musical keys. Instrument timbre can have a significant impact on perception – it is not strange that no matter how different pitches are, all may fall under a single (instrument) color (Shaw-Miller, 2014). Hence, different instrumentation initiates different color phantasies – when there are more instruments, a more colorful image we can create, and vice versa, and comparison might be made with density levels of texture. Agogics, dynamics, rhythm characteristics can evoke different perception “activity” and vibrance of the potentially corresponding picture.

On the other hand, the orchestration of picture ingredients – rising and falling lines, alternately strengthened or mellowed by their combination with varied chromatic combinations, provides a highly adaptable means of constructing a painting’s internal pattern of motion, or a specific rhythm. In observing a painting, we can also talk in terms of “tonality”, more precisely, of tonality of colors, as well as of color and shape combinations in terms of dynamics, that can produce “loud” or “quiet” effects, or in terms of their harmonic or disharmonic compositions, or rhythmic structures. We can talk in terms of polyphonic and homophonic textures of both music and paintings. Finally, and very important to synesthetic perception, it is a role of emotion and an atmosphere activated by sounds/music or color/painting compositions, their structures, and forms.

As Van Campen emphasized, “music-induced images can change not only according to movements in the music itself but also according to where the attention of the synaesthete is directed. Thus, it makes a big difference if we listen to the whole composition accompanied by a whole visual experience, or we selectively choose parts of the music or wandering course of a bass line and focus on its corresponding images. The

same can be said for painting-induced music compositions” (Van Campen, 2010).

Synaesthesia offers us a peep into a different world – not that of fantasies but rather in the sense that it points to a different way of *experiencing* and *thinking about* the world and artworks. Even though artworks do not necessarily elicit synaesthesia as such, many of them hold power to widen people’s imagination and creativity. In the context of Debussy’s poetic and aesthetic, we believe that understanding the phenomenon of synaesthesia, and more important, of artistic synaesthesia, can help us in widening the perspective of a more profound comprehension of his music, and of *synaesthetic metaphors* which one can find in *Préludes* themselves.

On Possible Immediacy of Correspondence between Ear and Eye in Claude Debussy’s *Préludes* – Empirical Research

To explore all the synesthetic correspondences in *Préludes*, we have designed and conducted empirical research. The results confirm the thesis that each of us can synthetically contemplate the world, including works of art. Van Campen (2010) concludes his study with the statement that each of us can become aware of synaesthesia through a long time and a lot of concentration, because synaesthesia is hidden in our senses, we just have to explore and go looking for it to experience it consciously.

And, related to that, those synesthetic wonderings speak to the essence of who one is and celebrate the singularity of the subjective self, as Cytowic used to say (2018). Cytowic and Eagleman emphasized that “the reality is much more subjective than most people suppose insofar as it is not fixed ‘out there’ in the physical world and passively received by the brain, but rather constructed by individual brains that uniquely filter what hits the external senses” (Cytowic & Eagleman, 2009: 21). There is no single, unproblematically correct way of experiencing the world. Each process information and creates a personal map of his/her environment, in ac-

cordance with an own coding system. Thus, it could be argued that not only synesthetes, but *all* people experience the world around them in fundamentally unique ways. However, the results of the research testify to the existence of collective synaesthesia thinking, that is, *common synaesthesia*.

Aim of the research was to examine if there are *correspondences* between ear and eye, that is, between the music of Debussy’s *Préludes* and selected paintings that belong to the same spiritual space (impressionism, post-impressionism, symbolism, etc.) In that sense, research analyses perception of specified components of a temporal organization, i.e., the ‘breathing’/‘waves’ movement of musical flow (rhythm/meter, tempo), color (melody, harmony), texture, structure (fragment/integral whole), atmosphere (dynamics, agogics, articulation). These parameters are included in the research as a default for the assessment of music (Debussy’s *Préludes*) and visual examples (*fin de siècle’s* paintings). Without the intention to offer universal conclusions, the results of the research are interpreted concerning the proposed analysis of Debussy’s *Préludes* as an integral musical-dramaturgical flow and imaginary paint-art “exhibition”.

The research included four groups of respondents (47 total), which comprised the first-year students of several departments: Solfeggio and Music Pedagogy (15), Jazz and Popular Music (10), Piano Department (15), as well as PhD students of Faculty of Music (2 students), Faculty of Fine Arts (3 students), Faculty of Applied Arts (1 student) and University of Arts – PhD program Theory of Arts and Media (2 students).

The format of the research is a survey, which consists of three parts, and each has several segments.

In the first part of the survey – ***correspondence between music and painting*** – respondents needed to determine the relationship between the segment of musical flow and three provided paintings, and to select criteria from given parameters – musical/painting components on which he/she based his/her reasoning, after hearing/seeing the examples two times.

As the first example of this part of the survey we choose to play Debussy’s prelude No. 7

from the *First Book – Ce qu'à vu le vent d'ouest* and to show three paintings – *Effet de vent, serie des peupliers* (1891) by Claude Monet, *Snow Storm – Steam Boat off a Harbor's Mouth Making Signals in Shallow Water* (1842) by J. M. W. Turner and *Taches soleil sur terrasse* (1890) by Maurice Denis (Figure 1). In imaginary paint art exhibition, Debussy's virtuously prelude in Liszt manner, with its eruptive sound picture that represents culmination point of the second wave of the *First Book* found its pair in *Snow Storm – Steam Boat off a Harbor's Mouth Making Signals in Shallow Water* by J. M. W. Turner. In other words, an element of eruptive, stormy, furious nature, and man's powerlessness, as well as three-layered texture characterized by the melody in short strokes, virtuosic accompaniment and pedal tones, rich harmony and sort of harmony saturation of Debussy's prelude *correspond* (in our musicological interpretation) to Turner's visual spectacle of enormous intensity and kinetic energy (Botstein, 2001), to one of the very grandest statements of sea-motion, mist, and light, that has ever been put on canvas, according to art critic of the Victorian era, John Ruskin. Turner's tints and shades of colors are painted in different layers of color, the brushstrokes adding texture to the painting. The colors are monochromatic, only a few shades of grey, green and brown are present, having the same tone of colors. The pale silvery light that surrounds the boat creates a focal point, drawing the viewer into the painting. The smoke from the steamboat spreads out over the sky, creating abstract shapes of the same quality as the waves (Bockemühl, 2015). In that sense, one might say that Turner's use of paint and color is *musical* because of his sense of motion and that might be a reason why respondents choose the same painting as *correspondent* to Debussy's prelude; in other words, the painting has been seen as sounded music visually represented. Survey shows that 23 respondents (48.9%) stated that Turner's *Steam Boat off a Harbor's Mouth* completely *corresponds* to Debussy's *Ce qu'à vu le vent d'ouest*, 13 respondents (27.7%) decided that they pretty much *correspond*, eight respondents (17%) decided there is a half *corre-*

spondence between those two works of art, three respondents (6.4%) decided that there is a small degree of *correspondence* and no one answers negatively.

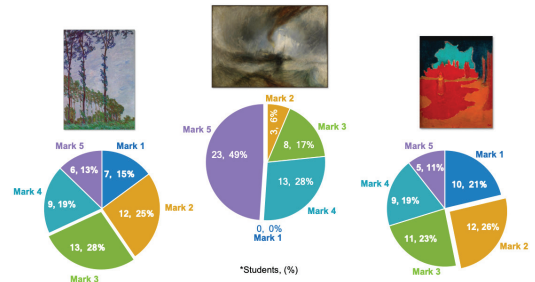


Figure 1. Correspondence between music and painting: Example 1.

As main criteria for basing such decisions, respondents emphasized **color** – melody/harmony (27 of them, that is 57.4%) and texture (18 of them, that is 38.3%), as well as **atmosphere** – dynamics (30 of them, that is 63.8%) and articulation/agogics (27 of them, that is 57.4%) (Figure 2).

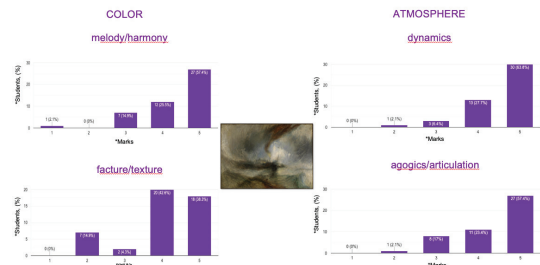


Figure 2. Reasoning criteria – color (melody/harmony, facture/texture) and atmosphere (dynamics, agogics/articulation): Example 1.

The second example in this part of the survey was the twelfth prelude from the *Second Book* of Debussy's miniatures – *Feux d'artifice* and other three paintings – *Nocturne in Black and Gold* (1875) by J. A. M. Whistler, *Célébration du 14 Juillet à Paris* (1886) by Vincent Van Gogh and *Ondine* (1889) by Paul Gauguin (Figure 3). In the proposed imaginary paint art exhibition, *Feux d'artifice* has two *correspondents* who, each on its own way and by its own *logic of pictorial*, match to Debussy's prelude. *Feux d'artifice* (in honor of the French national holi-

day – July 14) is masterfully evoked by the true fireworks of sound, virtuously, in the manner of Liszt's piano technique, with fast passages, tremolos, *glissandos*, complex chords. In the final part of the musical flow, in the last nine bars, when the bursting fireworks flash slowly extinguishes, from somewhere from afar appears a recognizable *Marseilles* fanfare motif, whose sound the composer adjusts beyond tonality; in other words, Debussy builds the bitonality by positioning fifth d-flat – a-flat in the deepest register (suggesting that way D-flat major) and registry distant fanfare motif of *Marseilles* on the decomposed C-major chord, which gives the impression of the spatial distance of the dying sound in the foreground and the segment of the hymn reaching from afar (Поповић Млађеновић, 2008, p. 78). In the same way, in his *Nocturne in Black and Gold* Whistler opposed a predominantly gold-colored pattern against a black background; that is a remarkable *tour de force* of virtuoso technique that serves not the subject of the painting, which is only a pretext, but the act of painting itself – that are colors and lines arranged on a flat canvas. Whistler's *Nocturne in Black and Gold* reminds us that the drama of a fireworks display has an essential lyrical and poetic dimension (notice all the *p* and *pp* markings in the prelude, and such instruction as *doux et harmonieux* – gentle and harmonious). The painting also provides a visual equivalent for that ineffable *joie de vivre* that is so potent in the music, that expression of spontaneity and easy freedom, as if everything is happening without forethought (Roberts, 1996, pp. 186–188). At Van Gogh's painting, we recognized pure, expressive color value and reflection immerse in the essence and function of color. That is the basic theme and subject of Van Gogh's painting, its independent reality, the deciding element. The color is applied roughly, directly from the tube, and put into the rough relationship and intrusive contrasts. It serves as a drawing, to define form, as well as to arrange the composition and determine ideas.

What survey shows is that respondents almost equally reacted to Whistler and Van Gogh's painting. In essence, 12 of them (25.5%) decided

that *Nocturne in Black and Gold* completely *corresponds* to Debussy's prelude, while 13 respondents (27.7%) agreed that it's the case with *Célébration du 14 Juillet à Paris*; 14 (29.8%) decided Whistler's painting *corresponds* pretty much to prelude, while 12 (25.5%) decided it's the case of Van Gogh's painting; 6 respondents (12.8%) decided there is half *correspondence* between *Nocturne in Black and Gold* and *Feux d'artifice*, while 11 (23.4%) decided there is a half *correspondence* between *Célébration du 14 Juillet à Paris* and *Feux d'artifice*; 10 respondents (21.3%) decided there is a small degree of *correspondence* between Whistler and Debussy's work of art, while eight respondents (17%) agreed that there is a small degree of *correspondence* between Van Gogh's painting and Debussy's prelude. Five respondents (10.6%) decided there is no *correspondence* between *Nocturne in Black and Gold* and *Feux d'artifice*. In contrast, 3 (6.4%) decided there is no *correspondence* between *Célébration du 14 Juillet à Paris* and *Feux d'artifice*.

In case of *Nocturne in Black and Gold* and *Feux d'artifice*, respondents choose as a primary criteria **movement** – rhythm/meter (29.8%), tempo (31.9%), **color** – melody/harmony (44.7%), texture (34%), **atmosphere** – dynamics (46.8%), articulation/agogics (40.4%) (Figure 4). In case of *Célébration du 14 Juillet à Paris* and *Feux d'artifice*, respondents choose as the main criteria **movement** – rhythm/meter (36.2%), tempo (38.3%), **color** – melody/harmony (40.4%), **atmosphere** – dynamics (46.8%), articulation/agogics (31.9%) (Figures 6 and 7). When it comes to *Ondine* by Paul Gauguin, answers were placed in *between*, which is displayed on the chart (Figure 3).

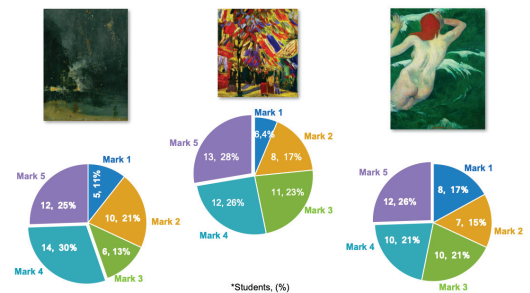


Figure 3. Correspondence between music and painting: Example 2.

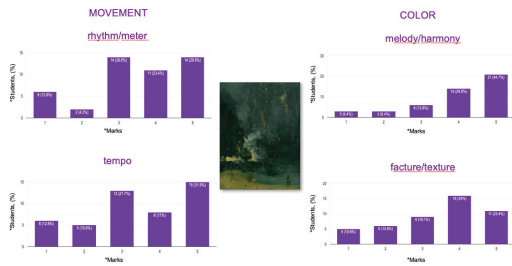


Figure 4. Reasoning criteria – movement (rhythm/meter, tempo) and color (melody/harmony, facture/texture): Example 2.

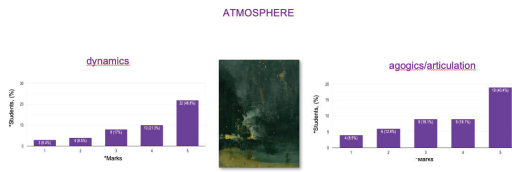


Figure 5. Reasoning criteria – atmosphere (dynamics, agogics/articulation): Example 3.

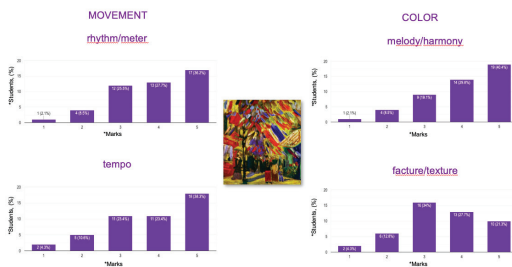


Figure 6. Reasoning criteria – movement (rhythm/meter, tempo) and color (melody/harmony, facture/texture): Example 4.

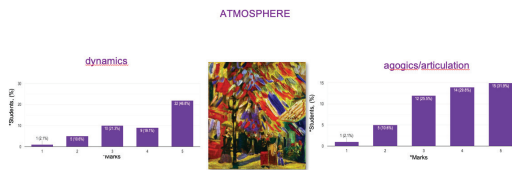


Figure 7. Reasoning criteria – atmosphere (dynamics, agogics/articulation): Example 5.

As the third example of this part of the survey, we played the third prelude from the *Second Book* of Debussy’s miniatures – *La puerta del vino* and displayed three paintings: *Taches de soleil sur la terrasse* (1890) by Maurice Denis, *Harmony in Blue – The Duet* (1878) by J. M. W. Turner and *Le Pont Japonais* (1918-1924) by

Claude Monet. Debussy wrote *La puerta del vino* under the inspiration of the Alhambra, the thirteenth-century Moorish palace close to Granada in southern Spain. This prelude, genre-scene, rests on the ostinato repetition of the *Habanera* rhythm (*in D-flat ‘field’*), over which, in some sort of bitonal relationship, develops melody colored by ornaments, oriental adulterants, with characteristic augmented second, elements of chromatic-scale, with base *in E* as a specific center with the prominent second step of Phrygian mode and Andalusian fifth whereby instead of using the traditional tempo mark, Debussy refers to *movement*, *Habanera movement*, a dance, and adds: *with a sudden opposition to extreme fierceness of ferocity, and passionate softness, tenderness, gentleness* (Поповић Млађеновић, 2008: 76–77). In our musicological interpretation and proposed paint art exhibition, this prelude by Debussy ‘is’ *Taches de soleil sur la terrasse* by Maurice Denis – a colored surface, in which various tones and various degrees of light are placed with a particular choice; in Hypolyte Taine’s words, it could be considered that sufficiency of those colors and lines is by itself a profoundness of our emotion – an *intimate being*. That was the only thing that made the connection between Denis’ painting and Debussy’s miniature according to respondents: **color** – melody/harmony (34%) and **atmosphere** – dynamics (42.6%) (Figure 8).

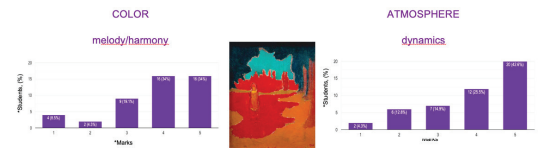


Figure 8. Reasoning criteria – color (melody/harmony) and atmosphere (dynamics): Example 6.

Almost the same answer appears when it comes to *correspondence* between *Harmony in Blue – The Duet* by Turner and Debussy’s *La puerta del vino*: **color** – melody/harmony (42.6%) and **atmosphere** – dynamics (36.2%) and articulation/agogics (34%) (Figure 9).

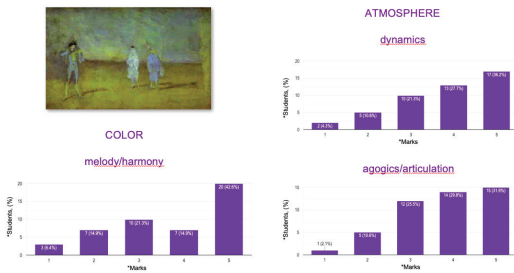


Figure 9. Reasoning criteria – color (melody/harmony) and atmosphere (dynamics, agogics/articulation): Example 7.

It is painting *Le Pont Japonais* by Claude Monet that, according to respondents, *corresponds* the most to Debussy’s prelude *La puerta del vino*; survey shows that 12 respondents (25.5%) decided that *Le Pont Japonais* completely *corresponds* to Debussy’s miniature, 14 respondents (29.8%) agreed that they pretty much *correspond*, eight respondents (17%) decided there is 50% *correspondence* between those two works of art, 11 respondents (23.4%) agreed that there is a small degree of *correspondence* and two respondents (4.3%) answered there is no *correspondence* between the two (Figure 10).

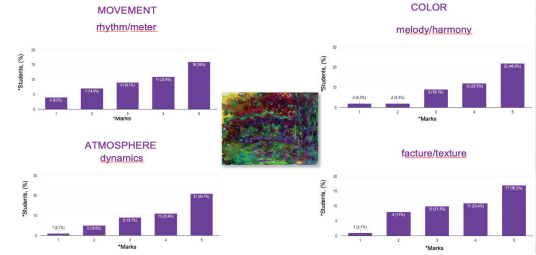


Figure 11. Reasoning criteria – movement (rhythm/meter), atmosphere (dynamics) and color (melody/harmony, facture/texture): Example 8.

In the second part of the survey – *correspondence between painting and music* – respondent needs to decide which of given segments of three different musical flows (first one from *La cathédrale engloutie*, second one from *Des pas sur la neige* and third one from *Ondine*) *corresponds* to a painting *La Cathedrale de Rouen. Le Portail, effet du matin* (1893) by Claude Monet, and then select criteria from given parameters on which he/she based his/her reasoning, after hearing/seeing the examples two times. Let me remind you that in our musicological interpretation, it was prelude *La cathédrale engloutie* that *corresponds* to Monet’s painting *La Cathedrale de Rouen. Le Portail, effet du matin* for how, despite its soft, enveloping blur, it represents not only mass but a line, as well. The visual analogy is inescapable, whether it is with paintings of Monet or with an imaginary cathedral arising from the sunken city of Ys on the Brittany coast; it looks and sounds like we are invited to make such associations, both by the title and by Debussy’s instructions on the score. The first, *dans une brume doucement sonore* (in a gently resonant mist), at the head of the score, characteristically fuses sound and sight; the second *peu à peu sortant de la brume* (gradually coming out of the mist), dispenses with sound altogether.

Besides this apparent *correspondence* we previously showed, in this part of the survey, we decided to play more *watery* preludes: *Des pas sur la neige*, prelude with distant, unfathomable atmosphere, at the very edge of silence (in the acoustic frames of *pp* and *p* dynamic) and of icy desolation of nature and soul; *Ondine*, the watery spirit of ancient mythology, mermaid whose beauty and siren songs lead many a mor-

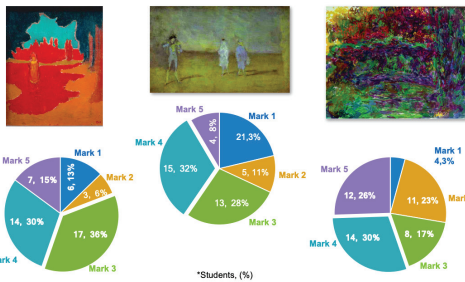


Figure 10. Correspondence between music and painting: Example 3.

As main criteria for basing such decisions, respondents emphasized: **movement** – rhythm/meter (16 of them – 34%), **color** – melody/harmony (22 of them, that is 46.8%) and texture (17 of them, that is 36.2%), as well as **atmosphere** – dynamics – 21 of them, that is 44.7% (Figure 11).

Indeed, at Monet’s painting emerge the impressionistic radiance and brilliant color and the effect of colored light, and that *corresponds* as well to the fullness of fantastic color suggestions of Debussy’s prelude.

tal to a watery grave. The imaginative conception of the piece is a fusion of the two different images of Undine. In the one, she is pixie-like, whimsical, temperamental (bizarre), while in the other, she is sensual, mysterious, and, being underwater, forever unattainable.

It seems like, according to the results of the survey, respondents, although they haven't been told what pieces they were listening (or painting they were seeing), recognized this *watery quality* of Debussy's music. This can be seen based on answers respondents gave for the first musical miniature – that is *La cathédrale engloutie*, and the second one – that is *Des pas sur la neige*.

Thirteen respondents (27.7%) said there is an absolute *correspondence* between Monet's painting and *La cathédrale engloutie*, while 18 of them (38.3%) decided in favor of *Des pas sur la neige*! Eighteen respondents (38.3%) said there is pretty much *correspondence* between painting and *La cathédrale engloutie*, while 13 (27.7%) of them said that for *Des pas sur la neige*! Twelve respondents (25.5%) decided there is a half *correspondence* between painting and *La cathédrale engloutie*, while 8 (17%) decided there is a half *correspondence* between Monet's canvas and Debussy's *Des pas*; 3 respondents (6.4%) decided there was a small degree of *correspondence* when they were asked for *La cathédrale engloutie*, while six respondents (12.8%) concluded the same when they were asked for *Des pas sur la neige*. One respondent (2.1%) perceived no *correspondence* between painting and Debussy's tenth prelude, while two respondents (4.3%) decided there is no *correspondence* between Monet's painting and Debussy's sixth prelude. In the case of *Ondine*, respondents answered as follows: 6 (12.8%) no *correspondence*, 5 (10.6%) small degree of *correspondence*, 21 (44.7%) a half *correspondence*, 8 (17%) pretty much *correspond*, 7 (14.9%) absolutely *correspond* (Figure 12).

When it comes to the criteria, the survey showed exciting results, as well. What we noticed is that in the case of *La cathédrale engloutie* and *Des pas sur la neige* parameter of **color (melody/harmony)** was the most important one. In the case of *La cathédrale engloutie* 25 respondents (53.2%) answered that there is complete *correspondence* with Monet's painting,

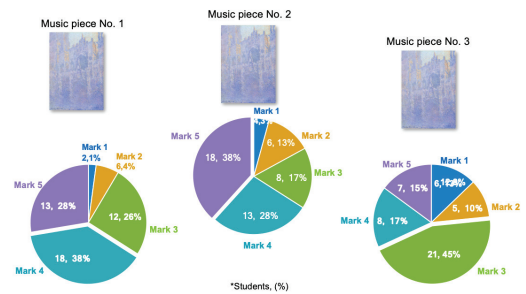


Figure 12. Correspondence between painting and music.

while in the case of *Des pas sur la neige* there were 26 of them (that is 55.3%). The category of the **atmosphere (dynamics and articulation/agogics)** was significant, too. Twenty-six respondents (55.3%) decided that the dynamic of *La cathédrale engloutie* completely *corresponds* to the same criteria in Monet's painting, and 18 of them (38.8%) answered that for articulation/agogics. In the case of *Des pas sur la neige*, 21 respondents decided that dynamics of this prelude completely *correspond* to proposed canvas, while 13 (27.7%) it was articulation/agogics. So, according to the results of this part of the survey, both, *La cathédrale engloutie* and *Des pas sur la neige* could be seen as *correspondent* to Monet's *La Cathedrale de Rouen. Le Portail, effet du matin*. In the case of *Ondine* same parameters were crucial. To be precise, respondents emphasized: **color** – melody/harmony (14 of them, that is 29.8%) and **atmosphere** – dynamics (17 of them, that is 36.2%), articulation/agogics (15 of them, that is 31.9%) (Figures 13, 14 and 15).

It seems that respondents subconsciously recognize the *element of water* in these three Debussy's preludes (which derives from a particular way of building a musical flow of each prelude), and their almost equal *correspondence* with Monet's painting. Maybe, the subtle interweaving of colors in each prelude led respondents subconsciously to a "conclusion" that *La cathédrale engloutie* for a nuance represents absolute *correspondent La Cathedrale de Rouen*. However, it might be, as well, *Des pas sur la neige* and *Ondine*.

The third part of the survey – **correspondence between a group of paintings and music** – examines the relationship between three

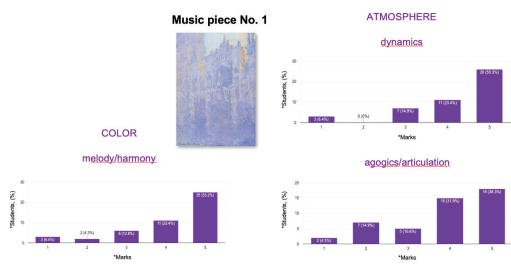


Figure 13. Reasoning criteria – color (melody/harmony) and atmosphere (dynamics, agogics/articulation): Example 9.

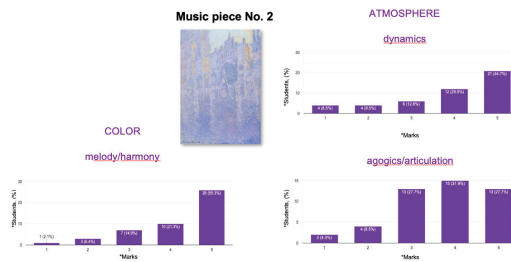


Figure 14. Reasoning criteria – color (melody/harmony) and atmosphere (dynamics, agogics/articulation): Example 10.

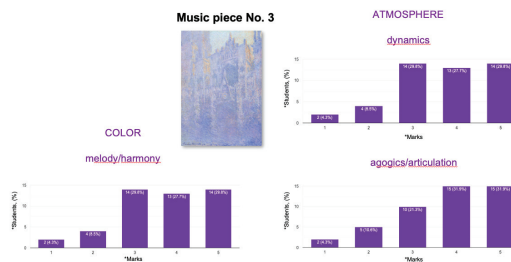


Figure 15. Reasoning criteria – color (melody/harmony) and atmosphere (dynamics, agogics/articulation): Example 11.

groups/“exhibitions”, each formed from three paintings (I group/“exhibition”: Edgar Degas – *Trois danseuses* /1890/, Edgar Degas – *Au bord de la mer, sur une plage, trois voiliers au loin* /1869/, Claude Monet – *La Plaine de Gennévilliers* /1877/; II group/“exhibition”: Odilon Redon – *The Black Torches* /1889/, J. M. W. Turner – *Grey Sea: A Boat Running Ashore, c. 1840*, Georges Pierre Seurat – *Coucher de Soleil* /1881/; III group/“exhibition”: Edgar Degas – *Trois danseuses en tutu violet* /c. 1896/, J. A. M. Whistler – *Sailboats in Blue Water Fogg* /1900/, Claude Monet – *Effet de vent, serie des peupliers*

/1891/), and segments from preludes that form the first *wave* in the *First Book* (three preludes: 1. *Danseuses de Delphes*, 2. *Voiles*, 3. *Le vent dans la plaine*), and criteria for basing such relationship, after hearing/seeing the examples two times. In other words, what respondents heard were the segments from preludes that form the first *wave* of the cycle and noticed, according to our interpretation, three *correspondent* groups of paintings. It is essential to mention that only the second group/“exhibition” (Odilon Redon – *The Black Torches*, J. M. W. Turner – *Grey Sea: A Boat Running Ashore, c. 1840*, Georges Pierre Seurat – *Coucher de Soleil*) didn’t find a place in the final version of an imaginary paint art *exhibition* of Debussy’s *Préludes*. It was *composed* later, during the process of preparing the survey, we recognized possible immediacy of *correspondence* between ear and eye, that is, *correspondence* between the *logic of a pictorial* of that group of paintings to the *logic of a musical flow* of Debussy’s first *wave*.

According to musicological argumentation and interpretation, the first *wave* of the cycle represents the most coherent group of the entire cycle.

If we immerse into the *logic of pictorial*, it could be said that *Danseuses de Delphes* represents a *group portrait* of a sort, prelude that evokes antique age and serious, solemn dance of religious nature, a part of Apollo’s temple in Delphi ritual, based on figures depicted on Greek antique vases. Also, this prelude embodied Debussy’s impressions of caryatid in the Louvre – a support column sculpted in the form of the female figure. That’s the reason why, according to Paul Roberts, an interpretation needs to concentrate on the sculptural and statuesque, and on the “paradox of immobility suggesting movement and weight suggesting weightlessness – all central concerns of sculpture and architecture” (Roberts, 1996: 243). In that sense, we found a parallel between *Danseuses de Delphes* and fantastic figures that belong to Redon’s artistic universe, and those are *sculpturness, architecturness*, as well as, mystery and evocativeness.

As opposed to the first prelude, *Voiles* – with an element of water, sea, prelude based on

consistent whole-tone material of musical flow, which decomposes all relevant factors of tonality and is used coloristic in terms of its distinctively fluid, *watery* sonority – is sort of study of motionlessness, even monotony – *grey tones lightly tinged with white* (Roberts: 1996, p. 244). It shouldn't be too colorful, according to pianist Marguerite Long. Its counterpart in the painting can be found in the later paintings of Turner (such as *Gray Sea: A Boat Running Ashore*), late miniature seascapes of Whistler (such as *Sail Boats in Blue Water Fogg*), or, perhaps, the little-known pastel seascapes of Degas (especially *Au bord de la mer, sur une plage, trois voiliers au loin*). Possible interpretation relates the prelude to some eastern or archaic ritual, the continuing ambiance of *Danseuses of Delphes*. An eastern context would suggest that the sonorities and whole-tone scales are to be associated with the music of the Javanese gamelan. In this case, an interpretation would concentrate on clarity and line, with brighter, more gong-like textures than a Degas seascape would suggest.

Le vent dans la plaine could be a *sound image* of elementary force power, but it also could be considered, metaphorically speaking, *the wind in the plane which is holding its breath*. Its rhythmic manner might better be described as driven, though the music is feather-light in its dynamics, the force of nature it is depicting seeming more a gentle breeze than a robust wind. Yet there is a sense of anxiety in the mood here. Every breath of wind is alive. It's a piece of air that once lived, and it's an airy cloth that will wear off some soul. *There is something or someone in that wind...* and Debussy has experienced it. As a master of realistic effects, he renders what he has heard – precisely as a painter renders what he has seen on canvas: Claude Monet on *La Plaine de Gennevilliers* or *Effet de vent, serie des peupliers*, or maybe Georges Pierre Seurat on *Coucher de Soleil*.

All three paintings, as well as Debussy's *sound picture* that evokes a landscape, suggest a continuation of the story, in which the breath is exhaled in a thunderous outburst that presages the violence of gale in the *Ce qu'a vu le Vent d'Ouest*.

What survey shows is that respondents almost equally reacted to the first two groups of paintings: 8 of them (17%) decided that the first group/"exhibition" completely *corresponds* to Debussy's *first wave*, while seven respondents (14.9%) agreed that it's the case with the second group/"exhibition"; 13 (27.7%) decided the first group of paintings *corresponds* pretty much to the *first wave*, while 12 (25.5%) decided it's the case of the second group of painting; 15 respondents (31.9%) decided there is a half *correspondence* between *first exhibition* and *first wave*, while 18 (38,3%) decided there is a half *correspondence* between second group/"exhibition" and music from Debussy's first three preludes; 7 respondents (14.9%) decided there is a small degree of *correspondence* between the first group/"exhibition" and Debussy's miniatures, while nine respondents (19.1%) agreed that there is a small degree of *correspondence* between the second group of paintings and Debussy's *first wave*. Four respondents (8.5%) decided there is no *correspondence* between the first group of paintings and Debussy's music. In contrast, one respondent (2.1%) perceived no *correspondence* between the second group/"exhibition" and the *first wave* of Debussy's cycle (Figure 16).

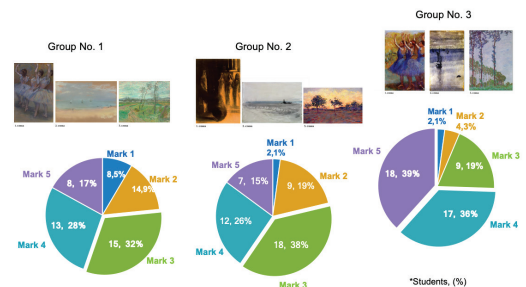


Figure 16. Correspondence between a group of paintings and music.

So, it is painting the third group/"exhibition" (Edgar Degas – *Trois danseuses en tutu violet*, J. A. M. Whistler – *Sail Boats in Blue Water Fogg*, Claude Monet – *Effet de vent, serie des peupliers*) that, according to respondents, *corresponds* the most to Debussy's *first wave* formed by first three preludes; survey shows that 18 respondents (38.4%) decided it completely *corresponds* to Debussy's miniatures, 17 respondents (36.2%)

decided that they, pretty much *correspond*, nine respondents (19.1%) decided there is a half *correspondence* between those two paint/music “exhibitions”, two respondents (4.3%) decided that there is a small degree of *correspondence* and one respondent (2.1%) answered there is no *correspondence* between the two. As the main criteria for basing such decisions, respondents emphasized **movement, color, structure, and atmosphere** – these are all four criteria. In the category movement respondents accentuated as altogether *correspondent* rhythm/meter (19 of them and that is 40.4%); in the category of color it was melody/harmony (21 of them and that is 44.7%) that completely *correspond*, while texture pretty much *corresponds* (according to 14 of them and that is 29.8%); category **structure** shows that main criteria is entire whole – 15 respondents (31.9%) answered there is the highest *correspondence* between the third group of paintings and Debussy’s *first wave* of the cycle. In the category **atmosphere**, respondents emphasized dynamics – 23 of them (48.9%) answered there is the absolute *correspondence* between those two paint/music “exhibitions” – and articulation/agogics – 21 of them (44.7%) agreed there is, also, an absolute *correspondence* between the two.

Conclusion

In the available writings on Debussy’s opus, it is possible to find various perspectives and approaches in focusing on the *Préludes*. However, none of them focuses on the *Préludes* as a cycle with a very specific musical dramaturgy, and it is an idea, which was musicologically elaborated through the first part of this paper. In other words, it was pointed out to the integrative factors which derive from Debussy’s compositional principles, compositional procedures, and compositional-technical solutions, which affect the integral perception of *Préludes*, i.e., a complete musical-dramatic flow – a cycle of 24 miniatures (Поповић Млађеновић: 2008, p. 73). Also, based on the concept of *Préludes* as a cycle, this paper offered their possible interpretation as a very explicitly conceived unique paint art exhibition that would reveal resonat-

ing with the aesthetics and practices of Whistler, Turner, pre-Raphaelites, impressionist and post-impressionist painters, the symbolist painters, as well as the symbolist poets (Botstein, 2001; Rubin, Mattis: 2018). The main contribution of the first part of the paper lies in the musicological interpretation of Debussy’s *Préludes* as a cycle, as well as an imaginary paint art exhibition in gallery space guided by the *logic of pictorial*.

What helped us to ‘see’ music through the *logic of pictorial*, to ‘hear’ paintings according to musical laws and to find their hidden or not-so-obvious interconnections, those that we usually explain in terms of metaphor, was comprehension of synaesthesia. Concerning that, the second segment of this paper opened psycho-musicological discussion on how can we differentiate ‘synesthetic perceptions’ from ‘synesthetic metaphors’, and how an understanding of the experience of a synesthete helps ‘synchronesthetic’ experience of non-synaesthete. That led us further to ‘inter-sense’ comprehension of the musical world of Claude Debussy’s *Préludes*. Those ideas of ‘seeing’ music (in pictorial terms) and ‘hearing’ paintings (according to musical laws) were cross-checked with the results presented in the third part of this paper. The empirical research had the intention to examine potential *correspondence* areas between music and paint art. It was driven by the proposed musicological interpretation of Debussy’s *Préludes* and theoretical analysis of the mentioned relationship in the field of synaesthesia. Non/overlapping points were pointed out by crosschecking survey results and musicological-theoretical conclusions.

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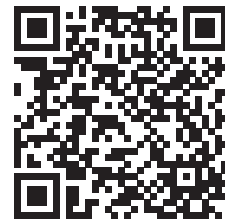
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