INVESTMENTS IN EDUCATION DEVELOPMENT

Palacký University Olomouc

Interdisciplinary research on the musical culture

Anthology of PhD thesis competition

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Content

Introduction

This anthology represents one of the outputs for Interdisciplinary research of the musical culture project, which was carried out at the Department of Music Education, Faculty of Education, Palacký University in Olomouc, between 2009 and 2012. The project also included the announcing of a competition for the best Master's and Doctoral thesis with focus on research in the area of musical culture. Certain initial worries about an adequate response to such competition turned out to be rather unfounded, and the competition organizers gradually received fifteen high quality entry thesis.

During their evaluation, they had to deal with the question of how to as much as possible rightly evaluate the submitted theses since the topics were so varied. I feel that due to the experience of the jury members, this problem was eliminated and resolved in a satisfactory manner. During a thorough and demanding evaluation procedure, participated in by five evaluators – professors and senior lecturers from the Faculty of Education, the Medical Faculty and the Faculty of Natural Sciences of Palacký University, the jury finally selected five theses that best met the predetermined criteria.
Owing to the fact that the extent of all competition theses ranged between 150 and 200 pages, their full publication was not possible. The authors were, therefore, asked to revise their texts in order to reduce them to a form that would correspond with the editorial and financial conditions resulting from the project assignment. Such an abridged version of the competition thesis is, as a result, presented in this anthology.

I see perhaps the main benefit of this anthology in providing a publishing platform for our young colleagues, dealing with various issues arising from the intersection of selected musicological disciplines – music psychology, music sociology, music aesthetics, and historiography. Last but not the least, all texts are also in the English language facilitating their exposure to a wider circle of European and overseas experts.

Olomouc, January 26, 2012 prof. PaedDr. Jiří Luska, CSc.

Le Corbusier, E. Varèse, I. Xenakis: Poème électronique (1958)

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Abstract
The subject of this study is one of the first comprehensive multimedia pieces, consistently using electroacoustic material motion control in space. This piece was prepared for presentation of Philips Company, domiciled in Eindhoven, by three artists: Le Corbusier, Edgard Varèse and Iannis Xenakis. In this piece, Poème électronique (Electronic Poem) in a broader sense stands for a comprehensive name for a collection of all artistic achievements, associated with the Philips Pavilion at the Brussels World Fair in 1958. And although this study tries to present an interpretation of the Poème électronique (Electronic Poem) project as a unique union of personal poetics by strong artistic individuals, analytical emphasis of the study is mainly on the audio element of this "total work of art". The importance of Poème électronique (Electronic Poem), as regard our current perspective on the history of (electroacoustic) music and media art of the 20th century, in the recent years and decades has been proven not only by extensive foreign literature but also by various returns to this project in the form of attempts to achieve its physical or virtual reconstruction.

Key words
music, technology, multimedia art, space, architecture, humanism, Poème électronique (Electronic Poem), Le Corbusier, Edgard Varèse, Iannis Xenakis

Poème électronique (Electronic Poem) in the historical perspective

1958 was an important milestone for multimedia art. Two revolutionary concepts of "total art work" were introduced at the Brussels World Fair – the Czech *Laterna magika* and the French-Dutch project *Poème électronique (Electronic Poem).* It was meant to be a work of art that will be an artistic demonstration of the technological maturity of fields in which the Philips Company excelled and an illustration of the possibilities that the new electronic media had to offer.

In this study, the name *Poème électronique (Electronic Poem)* works at two levels: in the narrower sense it identifies the actual electroacoustic composition by Edgard Varèse, which could be heard at the Philips Pavilion, at the Brussels World Fair in 1958. In its broader sense, it works as an umbrella term for an entire bunch of art works, concepts and expressions, associated with the Philips Pavilion. It is the already mentioned composition by Edgard Varèse, electroacoustic composition *Concret PH* by Iannis Xenakis, which could be heard during the breaks between individual productions of *Poème électronique (Electronic Poem)*, and finally the composition *Metastaseis* by Iannis Xenakis. Xenakis applied the geometric plan of its score to the architectural design of Philips Pavilion and thus created a materialized musical piece, which was a container comprising other works of art. We must not forget about image projections (calling them a film would only be partially correct) and objects, suspended in the pavilion area designed and made by Le Corbusier.

Element transfers between different types of art, multimediality

A key element of the project, which is one of the breakthrough art works of the 20th century, are the universal competencies of individual authors of this multimedia environment: Varèse as a composer, acoustics and natural sciences expert, Xenakis as a composer and architect, and Le Corbusier as an architect, artist and music expert. The Artistic Director of Philips Company, Louis Kalff, did not just select Le Corbusier by chance. Kalff was enchanted by his execution of Notre-Dame-du-Haut church in Ronchamps (1951–55). When designing it, Le Corbusier was inspired by the organic

shapes of sea creatures, for example a crab shell provided a model according to which the shape of the roof was conceived. At the same time, other features characteristic of his future direction already evinced here, such as his concept of architectural space as a theatre. Le Corbusier himself called the church area a "magic box", meant for a play of sunrays beaming into the nave.

His experiments of bringing and projecting daylight into a closed architectural space continued even in the project of a Dominican monastery La Tourette in Éveux-sur-Arbresle (1953–1960). There, he used light shafts coated with colour from the inside ("light-guides" of a sort) that brought daylight in the required colour into the crypt of the church. These constructions already show Le Corbusier's clear effort in actively impacting the visitor, the effort to surround and engulf him by the architecture's interior space. This space by Le Corbusier has a downright theatrical character. His important collaborator on the project of La Tourette monastery was Iannis Xenakis, who enriched the modern concept of a monastery with a glassed-in ambulatory. The shape of its windows, called "pans de verre ondulatoires" (undulating glass surfaces) was calculated according to the Modulor system and the windows were thereby given quasi musical rhythm.[1] He then used the principle when designing these architectural elements in his composition *Metastaseis* (prem. 1955 in Donaueschingen). The score of this piece, stipulated for a large orchestra, works with extreme division of parts, up to individual instruments. These instruments are kept in straight lines in long glissandi, which then mutually interlace and create linear areas in the score.

Xenakis then used these two-dimensional acoustic spaces for projection into a three-dimensional space and based on this he created a plan of the pavilion. The objective of this plan was, to the maximum possible extent, eliminate the share of architecture on the complex of the multimedia piece. In an effort for maximum dematerialization of the pavilion architecture, Le Corbusier embraced it as a mere "container", containing light, sound, movement and colours. The initial idea of the pavilion's groundplan was an organic shape of a stomach. In keeping with his ideas about active impact of the architecture on a person, he thought about the pavilion as some form

[1] RAGOT, G. – DION, M. *Le Corbusier en France. Réalisations et projets (Le Corbusier in France. Works and Projects).* Paris: Éditions du Moniteur, 1992, p. 170.

of digestive organ, which the audience enters at one end, only to come out the other end in ten minutes, transformed by the aesthetic experience of its artistic "contents". The result of the design was a self-supporting concrete tent, the only function of which was to separate the outside space from the inside, i.e. to create scope for a multimedia piece, which could also be called audiovisual installation, or an immersive environment. Boesiger[2] considers *Poème électronique (Electronic Poem)* to be the first manifestation of a new form of art – "electronic games" (les jeux électroniques; Elektronische Spiele), consisting of unlimited synthesis of colours, images, music, speech and rhythm.

The basis of the musical element for *Poème électronique (Electronic Poem)* was a synthesis of methods from the French *musique concrete (concrete music)* and the German electronic music. Intellectually, Varèse resulted more from the French background of working with concrete audio objects as serialism, applied in electronic music, was far from his own approach. He refused to be associated with the French "Concretists", Italian Futurists or any other artistic movements. His interest primarily focused on the composition of audio material.[3] In *Poème électronique (Electronic Poem)* we can thus find sounds that are purely electronic: the whizzing of sinusoid generators, etc., as well as deformed concrete sounds: bells, transposed piano chords, filtered recordings of choirs and solo parts, organ and other objects, which are difficult to identify. Even the technicians from Philips laboratories had a hard time identifying them; they usually resulted from their onomatopoeia function.

It was from about the late 1920's that Varèse engaged himself in spatial distribution of his music (*Espace*; 1929–39). In his lecture *The Liberation of Sound*, which was held in Santa Fe in 1936 and has become canonical, he codifies a fourth dimension of music: apart from horizontal, vertical and dynamic dimensions, he also speaks of sound projection some 22 years earlier than Stockhausen in his Darmstadt lecture *Musik im Raum* (Music in Space) (1958).

Spatial execution of *Poème électronique (Electronic Poem)* was carried out through 425 speakers that were joined into routes of sound on the

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[2] BOESIGER, W. (ed.). Le Corbusier et son atelier rue de Sèvres 35. Oeuvre complete 1952–57(Le Corbusier and his studio at rue de Sèvres 35. Complete works 1952–57). Les Editions d'Architecture Zurich. (vol. VI.), 1991.

[3] OUELLETTE, F. *A biography of Edgard Varèse*. Translated from the French by Derek Coltman. New York: Orion Press, 1968, p. 212.

curved walls of the pavilion, and they enabled free movement of sound through space and maximum surround sound effect for the listeners.

An eight-minute projection was followed by a break in the form of a two-minute electronic composition by I. Xenakis, *Concret PH*, where the author used practically only one audio material, which was the cracking of a burning charcoal. Xenakis accelerated the recording multiple-times, achieving a high-pitched ringing sound. The composition's character was to evoke the effect of crashing walls of the pavilion in order to speed up the departure of the audience. Polyvalent title either referred to concrete music or to the pavilion material. PH either indicates Philips' initials or hyperbolic paraboloids, i.e. geometric shapes, defining the pavilion's form.[4]

The topic of *Poème électronique (Electronic Poem)* brings the following questions and ideas: what is the relation between the concept of space, music and architecture? Architecture, as a three-dimensional projection of musical structures, contains other subordinate moving musical (or audio) structures. Or: whether and under what terms can architectural form become a musical form? Is it possible to perceive space as a form of art, unfolding primarily in time? In this concept we recognise that proper conceptual system, required for description of such piece, is missing. It is very important to find the precise terms that are able to cover all aspects of the issue. Do we really have convenient terms to describe and work with idioms of a multimedia piece? It is not unreasonable to assume that synthesis of terms from various fields of science and art will be required.

From poème symphonique (symphonic poem) to Poème électronique(Electronic Poem)

Although it is a neologism, as far as the terminology is concerned, *Poème électronique (Electronic Poem)* comes from the French term *poème symphonique* (symphonic poem), the most consistent promoter of which was Franz Liszt (apart from the important predecessors, such as F. Mendelssohn-Bartholdy or H. Berlioz). Liszt composed a dozen of his symphonic poems (1848–1858) exactly one hundred years before Pierre

4 CABRERA, D. *Sound Space and Edgard Varèse's Poème Electronique (Electronic Poem)*. (Ph.D. thesis). Sydney: University of Technology, 1994, p. 4.

Schaeffer and Pierre Henry.[5] A certain relation between both types create the tendencies for finding the most adequate name for a new type of situation. Practical execution of a key piece from concrete music is preceded by aesthetic proclamation from the pen of Italian Futurists, who consider musically-dramatic poem to be the highest type of contemporary art.

In 1950, Pierre Schaeffer and Pierre Henry released almost a half-hour long composition using the elements of concrete music: *Symphonie pour un homme seul (Symfonie pro osamělého muže; Symphony for a Lonely Man).* It can be with some difficulties translated as *Symphony for a Lonely Man*, but literally as *"Symphony for a man solo"*. The pun in the name is based on the paradox of the idea of a massive symphonic cast, played by a single man, as authors worked with the audio material, which a human body can produce. Here the name "symphony" is thus used in the sense of a Greek term *syn+fonia,* i.e., in the sense of audio material juxtaposition.[6] Apart from that, the paradox included in the name is to describe existential situation of an individual confronting the masses. In his accompanying word, Pierre Schaeffer is calling the composition *"an opera for the blind, an act with no action, a poem created of noise and tones, text explosions, spoken or musical."*[7]

This "poem of noise and tones" is undoubtedly a direct inspiration for the name of *Poème électronique (Electronic Poem)*, which came from Le Corbusier's mind. Apart from the social and philosophical context, there is also an analogical aspect to spatial execution of a composition. On 20 June 1951, experimental production of *Symphonie pour un homme seul (Symfonie pro osamělého muže;Symphony for a Lonely Man)* with spatialization took place in the de L'Empire hall in Paris. By moving a coil in an electromagnetic field generated by four other coils, an operator controlled the movement of sound in space and in real time.[8]

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5 MACDONALD, H. Symphonic poem. In *Grove Music Online*. Oxford Music Online. [cit. 07. 07. 2008]. Available from: <http://www.oxfordmusiconline.com/subscriber/article/grove/music/27250>.

6 DHOMONT, F. Henry, Pierre. In *Grove Music Online*. Oxford Music Online. [cit. 7. 7. 2008]. Available from: <http://www.oxfordmusiconline.com/subscriber/article/grove/music/12813>.

7 SCHAEFFER, P. *Konkrétní hudba (Concrete Music)*. Prague: Editio Supraphon, 1971, p. 15.

8 Compare **BOSSIS, B.** *Introduction à l'histoire et à l'esthétique des musiques électroacoustiques (Introduction to the History and Aesthetics of Electroacoustic Music)* **[online]. [cit. 13. 2. 2008]. Available from:** <http://www.digiarts.com>.

Expo 1958 – the place for a new man?

Mottos at the Brussels World Fair were the following: *Bilan du monde pour un monde plus humain* (Balance of the World for a more humane World), *Rendez-vous de lumière et de paix* (Conference of light and peace) and *Synthèse pour un nouvel humanisme* (Synthesis for new humanism). General regulations of the Brussels World Fair 1958, Head I., Article I. stipulates that *"the final objective is to contribute to the bloom of effective world solidarity, based on respect for human personality."*[9]

At the end of the 1950's, this anti-war message may seem a little bit of an anachronism, but we must realise some important context. Expo in Brussels was, first of all, the first World Fair after World War II, and it meant re-establishing international contacts disrupted by war. The last pre-war World Fair took place in New York in 1939. Furthermore, the Expo was to provide room for seeking answers to the question of what is the role of Man in the World of rapidly developing technologies and armament in the ongoing Cold War. In 1957 alone, the United States of America carried out nuclear tests in Nevada, Great Britain executed experimental hydrogen bomb explosions on Christmas Island and the Soviet Union launched a first artificial Earth orbiting satellite, Sputnik.

In a very tense international situation of nuclear armament, statements by important artists or scientists supporting regulation and inhibition of the nuclear arsenal were no exception. Good examples are statements by Albert Schweitzer or Pablo Casals, the Czech translation of which was published in the *"Hudební rozhledy"* journal.[10]

Information pamphlet by Philips Company for EXPO 58 presented the visitors with more than a mere description of exhibitions; we could rather speak about an aesthetic programme connecting the promotion of their own technologies with an artistic concept:

"*The electronic poem will be repeated many thousands of times. That is why the equipment has been automatized to such an extent that the fallible human factor has been virtually eliminated. This synthesis between humanity and inventiveness has resulted from the cooperation between artists and*

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9 SANTAR, J. Expo 58: Světová výstava v Bruselu (World Fair in Brussels). Prague: SNKLU, 1961.

10 Mír nebo atomovou válku? (Peace or Atomic War?) *Hudební rozhledy journal*, vol. 11, 1958, p. 355–358.

technicians which has lasted for months, and with which Philips aspires to take a prominent share in this great manifestation of Modern Man."[11]

Assignment for the project of Poème électronique (Electronic Poem)

When the Artistic Director of a Dutch company Philips *Gloeilampenfabrieken, domiciled in Eindhoven*, Louis C. Kalff, asked what will be the title of work representing his company at the Brussels World Fair Expo 1958, Le Corbusier, as an already famous almost seventy-year old architect, answered without hesitation *Poème électronique (Electronic Poem)*.

The pavilion was supposed to be a work of art that will, at the same time, demonstrate technological advancement in the fields in which Philips excelled. The scope of technologies, the development of which was worked on by Philips, was very wide. It included audio technology (gramophones, magnetophones, speakers, amplifiers, and telephones), display technology (projection technology, televisions, X-rays) and illumination technology (fluorescent lamps, etc.). Since 1938, Philips developed stereophonic reproduction and in the post-war years the company worked on audio systems for wide-angle systems, such as Cinemascope or Todd-AO. During the 1950's, Philips developed new acoustic systems that were to improve the imperfect acoustic conditions of natural spaces of concert halls and churches. Additionally, the company was also involved in manufacturing portable tape players and recorders.[12]

Le Corbusier's ambition was to create more than a mere pavilion for demonstrating the extent of technological advancement made by Philips. *Poème électronique (Electronic Poem)* was also to be an artistic challenge to the world of commercial cinematography, distributed by Hollywood.

The Philips Pavilion may be attributed to Le Corbusier but, in fact, he acted as a mere *spiritus agens* of the entire matter. He commissioned a young member of his team, Iannis Xenakis, with the construction of the pavilion as he had already proven himself during the planning and design process of several previous projects.

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11 Programme text for Philips Pavilion exposition, Expo 1958, Philips [online]. Available from: <www.alice-eindhoven.nl>.

12 Compare TREIB, M. *Space Calculated in Seconds: The Philips Pavilion, Le Corbusier, Edgard Varese.* Princeton, New Jersey: Princeton University Press, 1996, p. 10.

Le Corbusier also conditioned his participation in the project with a requirement for an author of the audio element for *Poème électronique (Electronic Poem)* to be an American composer of French origin, Edgard Varèse (1883–1965). Philips management was somewhat outraged by his decision, as their preliminary expectations were more on the lines of participation by a representative of a more traditional line of music, such as Benjamin Britten, William Walton, Aaron Copland or Marcel Landowski. Moreover, as reminded by Xenakis, in what was the 1950's Europe, Varèse was – having spent about forty years in the U.S.A. – a practically unknown composer.[13]

Le Corbusier followed Varèse's work for a number of years and contemplated about their cooperation. They first briefly met in 1935 in New York; in 1951 Le Corbusier noted a contact for Varèse in his diary with the intention of having him compose music for the film on Unité d'habitation in Marseille. In 1954 he wrote Varèse a letter requesting help in designing electronic chimes for the bell tower of Ronchamps church.

In February 1956, Louis Kalff on behalf of Philips, requested Le Corbusier to design a pavilion for Expo 1958.[14] The entire project was to grasp the technologies developed by Philips in the boldest artistic manner. Le Corbusier accepted the proposal with probably a fairly clear idea of a project that is to be a container consisting of an essence of theatre and music.[15]

„*Je ne vous ferai pas un pavillon, mais un Poème électronique (Electronic Poem) et une bouteille contenant le poème: 1er lumière, 2e couleur, 3e image, 4e rythme, 5e son, réunis dans une synthèse organique accesible au public et montrant ainsi les ressources des fabrications Philips.*" [16] (*I will not create a pavillion for you but an electronic poem and a bottle, containing a poem: 1. light, 2. colour, 3. images, 4. rhythm, 5. sound, all mutually joined in an organic synthesis accessible to the public, which will then show the production resources of Philips)*

It is obvious that it was not just a building. Le Corbusier embraced architecture as an integral part of a multimedia unit, a complete work of art,

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13 MOTTE-HABER, H. de la – ANGERMANN, K. *Edgar Varèse 1883–1965: Dokumente zu Leben und Werke. (Documents on Life and Works)*. Frankfurt a. M.: Peter Lang, 1990, p. 78.

14 XENAKIS, op. cit., 2006, p. 139-179, chap. *Le Pavillon Philips, Bruxelles (Philips Pavilion, Brussels).*

15 „*„bouteille', contenant le ‚nectar du spectacle et de la musique'("a bottle', containing the nectar of spectacle and music")* XENAKIS, op. cit., 2006, p. 168.

16 XENAKIS, op. cit., 2006, p. 167.

as part of a structure where interaction between individual elements starts. Consolidation of various media (light, image, sound, space, movement) through architecture, which becomes a higher form of the said forms, is a fundamental moment. Xenakis uses the term *meta-art*; we would call it *multimedia art* today.

For the purpose of film projection, Le Corbusier required vertical surfaces of the pavilion. In order to create a three-dimensional effect, he also considered creating a form of a bottleneck at the top of the pavilion where the projected images will gradually disappear.

"*My idea is that music should have a part in this. In the darkness there will appear flashes of 'black light', certain objects or atmospheres of violently different colours. Their lumination (coloured neons) will allow dynamic flashing drawings to be made and from time to time a realistic event, but occupying space with a striking presence. It is a scenario to be created wholly from relationships; light, plasticity, design and music.*"[17]

He turns to Varèse with a succinct proposal:

"Could you make the music? I can also tell you that it is Xenakis who will design the Pavilion and prepare the drawings to be used for the details and synopsis of different sequences. [...] *I hope that this will please you. It will be the first truly electric work and with symphonic power.*"[18]

However, Varèse already composed such "truly electric [!] work with symphonic power"– it was his *Dèserts,* combining a large symphonic orchestra with purely electro-acoustic interpolations, which caused such stir at its premiere in Paris. Le Corbusier probably meant a "first exclusively electro-acoustic work" the impact of which could equal the power of a symphonic orchestra.

Xenakis: architecture of the pavilion

An important collaborator of Le Corbusier on the project of La Tourette monastery was Iannis Xenakis, who enriched the modern concept of a monastery with a glassed-in ambulatory. The shape of its windows, called "pans de verre ondulatoires" (undulating glass surfaces) were calculated according to the Modulor system and the windows were thereby given quasi

17 TREIB, op. cit., p. 6.

18 A letter from Le Corbusier to Varèse, 12 June 1956. In TREIB, op. cit., p. 6.

musical rhythm.[19] He then used the same principle when designing these architectural elements in his composition *Metastaseis* (premiered in 1955 in Donaueschingen). The score of this piece, stipulated for a large orchestra, works with extreme division of parts up to individual instruments. These instruments are kept in straight lines in long glissandi, which then mutually interlace and create linear areas in the score.

„*If glissandi are long and sufficiently interlaced, we obtain sonic spaces of continuous evolution. It is possible to produce ruled surfaces by drawing the glissandi as straight lines.*"[20]

Xenakis then used these two-dimensional acoustic spaces for projection into a three-dimensional space, and based on this he created a plan of the pavilion. The objective of this plan was to a maximum possible extent eliminate the share of architecture on the complex of the multimedia piece. The initial idea of the pavilion's groundplan was an organic shape of a stomach. In keeping with the ideas about active impact of architecture on a person, he thought about the pavilion as some form of a digestive organ, which the audience enters at one end only to come out the other end in ten minutes, transformed by the aesthetic experience of its artistic "contents". The result of the design was a self-supporting concrete tent, the only function of which was to separate the outside space from the inside, i.e. to create a scope for a multimedia piece, which could also be called audiovisual installation or an immersive environment.

The initial architectural design of the pavilion was based on a circular groundplan with two entrances/exists. After it was redesigned several times, a final shape – a result of joint requirements for acoustic conditions, film projection possibilities and possibilities of the pavilion's technical structure – was achieved.

The best option from these three perspectives appeared to be hyperbolic paraboloid surfaces and conoids. Such organic concept of the pavilion was a better fit for the line of Le Corbusier's aesthetics that worked with forms observed from nature (see the church in Ronchamps, etc.). The originally required straight surfaces for film projections were not suitable for acoustics due to the occurrence of undesirable reflections; on the other hand arbitrary oblique surfaces had no structural solution.

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19 RAGOT, G. – DION, M. *Le Corbusier en France. Réalisations et projets. (Le Corbusier in France. Works and Projects)* Paris: Éditions du Moniteur, 1992, p. 170.

20 XENAKIS, I. *Formalized music*. New York: PendragonPress, 1992, p. 10.

Here is where we can see that how much of Le Corbusier's aesthetics was adopted by Xenakis. In his complex perception of the World and its forms, he reaches the concept of a new interdisciplinary scientific field, general morphology, that will be based on rational abstraction of empiric experience. A scale model of the pavilion was made of piano strings and wooden boards. At the end, three braces could be left out so that the pavilion was absolutely self-supporting. However, this design did not succeed.

Construction of the pavilion was to be handled by the Belgian company Strabed. Xenakis designed a lightweight frame, a self-supporting shell of a sort of reinforced concrete. He speaks about such kind of architecture as about *"architecture volumétrique (dimensional architecture)"*. Curved surfaces were made of tiles, with dimensions of 1.5 × 1.5 × 0.05 m. A pavilion with a groundplan length 40 m, width 25 m and height of its peak 22m was thereby constructed.

The project budget was the following: project design and electronic presentation amounted to 10 million francs, the sum promised to Edgard Varèse for his cooperation, excluding travelling expenses, amounted to 3 million francs.[21] If converted to today's currency, total costs for presentation of the company climbed to about EUR 3 million.[22]

Xenakis called the multimedia genre of the presentation as an example of "*spectacles-événements (spectacle-event)*". He was not happy with Le Corbusier's scenario, which he found too narrative. In his *Notes sur un geste électronique (Notes on Electronic Gesture)* and later also in execution of his *Polytopes* he strived for much more abstract artistic expression.

The speakers used in the Philips Pavilion were already developed for the church of La Tourette monastery, where they were ultimately not used. For their shape, Xenakis called them "*diamants acoustiques*"*(acoustic diamonds)*.

The pavilion was opened on 17 April 1958, but had to be closed immediately afterwards due to technical issues with sound and light projection. Following a brief outage for solving technical issues, the pavilion was reopened on 01 May 1958.

Projection of the audiovisual work was carried out through 425 speakers and 4 film projectors, and was fully automated. All control commands,

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21 TREIB, op. cit., p. 6.

22 Compare *Make it New: Le Poème électronique (Electronic Poem)* [online]. [cit. 6. 4. 2009]. Available from: <http://www.alice-eindhoven.nl/blog/>.

controlling the course of events inside the pavilion, were saved on a tape in 15 tracks. Forty presentations were carried out within one day, each one of which could have been seen by 600–700 visitors. Throughout the entire World Fair, the pavilion was visited by about 1,500,000 visitors. Once the World Fair ended, the pavilion was dismantled due to apprehensions about the impact of climatic conditions on the integrated audiovisual technology.

Fig. 1 Philips Pavilion. Photo by Karl Widmaier, Baden-Baden.

Le Corbusier: the visual element (film, lights, objects)

Le Corbusier took on the visual aspect of the work, which consisted of black and white slide projections directly on the pavilion's curved walls (*écrans*), tinted with coloured lights (*ambiances*) that were often divided into zones to accentuate the architectural features of the pavilion. He also designed two objects (bodies) suspended in the pavilion space (*volumnes*): these were two female mannequins and a stereometric body built from metal rods with fluorescent paint. When lit with UV rays, one body was shining red and the other greenish blue.

The visual element was of a narrative character for which Xenakis criticised Le Corbusier. The scenario consisted of seven parts (Genesis, Spirit and Matter, From Darkness to Dawn, Man-Made Gods, How Time Moulds Civilization, Harmony, To All Mankind) where he described human efforts to cope with the consequence of technological progress.[23]

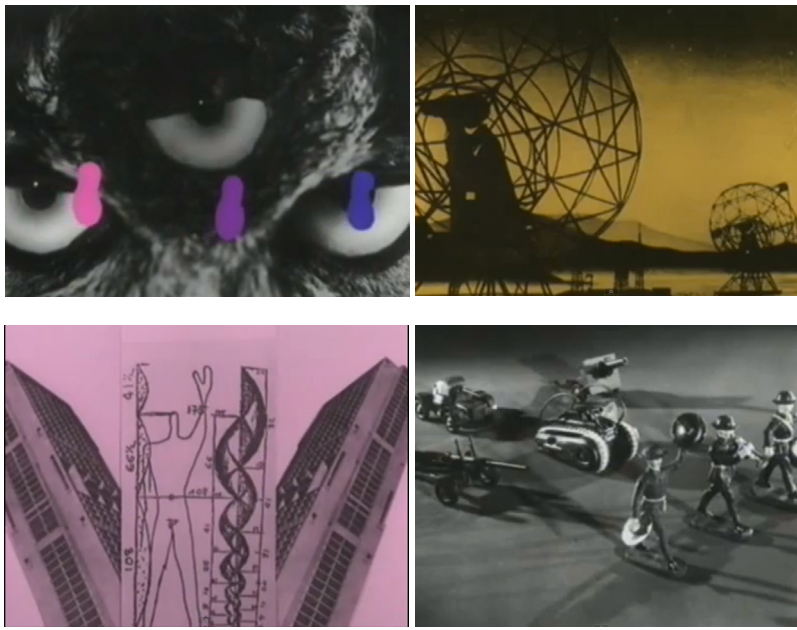

Fig. 2 Shots from Poème électronique *(Electronic Poem)*.
Source: www.youtube.com

The last part of the visual element consisted of three film cut-ins *(tritrous)* with clear colours or objects projected on the edge of projection areas. In addition, a red sun, a moon, stars and clouds could also be mixed into the visual element.[24]

[23] Names in Dutch are stated according to the subtitles of *Poème électronique (Electronic Poem)* film version. [online]. [cit. 20. 8. 2009]. Available from: <*http://www.youtube.com/watch?v=M1AT8rI_A8M*> (Translated by M. F.).

[24] MOTTE-HABER, H. de la – ANGERMANN, K., op. cit., 1990.

Varèse: music and sound

Poème électronique (Electronic Poem) is a collage largely made from previous projects. These projects are *Étude pour Espace (Spatial study)* and *Déserts (Deserts)*. We know that the author also used graphic recording of jazz improvisation.

The term "*étude*" from *Étude pour Espace (Spatial study)* can be translated as a study or a sketch. In this case, it is a part of sentence 3 from the unfinished project *Espace* (1929–), which is about twelve-minute long. A motto for this composition was "*L'humanité en marche*" (Mankind marching), a kind of manifesto for humanism by Varèse, quoted by Henry Miller in his novel *The Air-Conditioned Nightmare*.[25]

The author counted with similar cast as in his composition *Ecuatorial*. His intention was to use the possibility of sound distribution in space, or more precisely put musical communication in extreme spatial conditions (through radio). He formally contemplated 3 sentences of attacca for a choir and a large orchestra. A piece by André Malraxe *Le Temps du Mépris* (1935) was supposed to be used for choir parts in parts 1 and 3. In this work, Malraux, Marxism sympathizer, tells a story about a secret resistance movement against Nazism in the fascist Germany.[26] The expected schedule of the piece was as follows: first movement: 12–15 min (dynamic character), second movement: 2–3 min (lyrical), and third movement: 20 min (choral singing, shouting, verses, mumbling, declamation, fragments of speech: syllables, slogans, desemanticized utterance). The rhythm of speech should work as a guiding principle of music. Only 69 measures were preserved from the third sentence sketch, which were then used in *Poème électronique (Electronic Poem)*.

Deserts, which in translation of *Déserts* (1950–54) composition work as a metaphore of an empty, seemingly endless space, became the foundation of subsequent *Poème électronique (Electronic Poem)*. Not so much in an aesthetic sense but rather as a source of audio material and technologies. This is also the moment (1953) of a new breakthrough in Varèse's work, characterized by work with a magnetic tape. That year he received, supposedly from an anonymous donor, a portable tape recorder.

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25 MILLER, H. *Air-Conditioned Nightmare*. From English original translated to Czech and included with notes by Věra and Jan Lamper. Olomouc: Votobia, 1996.

26 The entry André Malraux. *Encyclopædia Britannica*. 2009. Encyclopædia Britannica Online. [cit. 14. 1. 2009]. Available from: <http://www.britannica.com/EBchecked/topic/360521/Andre-Georges-Malraux>.

Reality (as it is usually the case) was somewhat different – the tape recorder was bought, with a contribution from a family friend Alcopley, by his wife Louise. But Varèse was not supposed to know about it. And it was this new technology that ignited his creativity to create the monumental *Déserts* (*Deserts*) (1954).[27]

The fact that Varèse worked on his compositions for a very long time and contemplated over them again and again, is proved by the fact that by 1961 he created in total four versions of *Déserts* (*Deserts*), while the last one is considered as the final. We can thus perceive them as "work in progress". In the same year, he completed a final version of his *Arcana.*[28]

Synthesis between the methods of Parisian concrete music and Cologne electronic music formed the basics of his work on the musical element of *Poème électronique (Electronic Poem)*. Intellectually, Varèse resulted more from the French background of working with concrete audio objects, as serialism, applied in electronic music was far from his own approach. He, nevertheless, refused to be associated with the French "Concretists", Italian Futurists or any other artistic movements. His interest primarily focused on composition of audio material.[29] In his composition we can thus find sounds that are purely electronic: whizzing of sinusoid generators, etc., as well as deformed concrete sounds: bells, transposed piano chords, filtered recordings of choirs and solo parts, organ and other objects, which are difficult to identify.

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27 MEYER, F. – ZIMMERMANN, H. *Edgard Varèse: Komponist, Klangforscher, Visionär (Composer, Acoustic Expert, and Visionary)*. Paul Sacher Stiftung (Paul Sacher Foundation). Mainz: Schott, 2006, p. 324.

28 OUELETTE, F. *Edgard Varèse*. Translated from the French by Derek Coltman. New York: Orion Press, 1968, p. 211.

29 OUELLETTE, op. cit., p. 212.

Working on Poème électronique (Electronic Poem) in Philips studio in Eindhoven

A groundbreaking study that significantly enriched Varèsian research is a text by Olivia Mattis *Von Bebop zu „poo-wip": Jazzeinflüsse in Varèses Poème électronique(Electronic Poem).*[30] The author of this text came to a suprising finding, expanding our understanding of *Poème électronique(Electronic Poem)* with yet another dimension. She found out that to create his sketch, Varèse used a graphic recording of several jazz jam sessions joined by him in New York in the spring and summer of 1957.

We have learnt from several sources that a detailed score of *Poème électronique (Electronic Poem)* actually never existed. Varèse says that only orientation score was created[31], Bernard[32] claims that there were only charts, through which Varèse planned and executed his work: "*No score* […] *ever existed for Poème, only charts which Varèse used to plan and execute the work*". This version is also confirmed by Marc Treib[33] and the team restoring the piece as part of a project *Virtual Electronic Poem – Make it new!*[34] There are only a few fragmentary copies of *Poème électronique (Electronic Poem)* (hereinafter as P. E.) records:[35]

1. A graphic score, kept at Paul Sacher Stiftung (Basel) – a fragment from a central part (Fig. 3).

2. A fragment of a score with several last seconds from P. E. (Department of Special Collections, Stanford University Libraries).

3. P. E. score at Philips Archive in Eindhoven (Fig. 4).[36]

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30 In MEYER - ZIMMERMANN, op. cit., 2006, p. 309–317.

31 VARÈSE, E. *Écrits (Works)*, op. cit., p. 163.

32 BERNARD, J. W. *The music of Edgard Varèse*. Yale University Press, 1987, p. 237

33 TREIB, op. cit., p. 211.

34 VALLE, A. – DOBSON, R. et al. *Varese's Poème électronique (Electronic Poem) regained: Evidence from the VEP project* [online]. [cit. 21. 3. 2009]. Available from: <http://www.edu.vrmmp.it/vep/>.

35 MEYER - ZIMMERMANN, op. cit., 2006, p. 312.

36 This version also printed by TREIB, op. cit., 1996, p. 198–199 and MEYER – ZIMMERMANN, op. cit., 2008, p. 313.

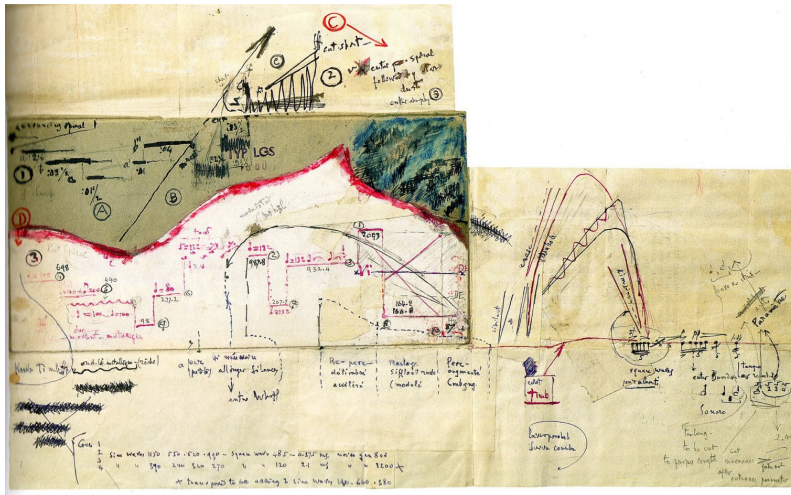

Fig. 3 A graphic sketch of the central part of Poème électronique *(Electronic Poem)*. Paul Sacher Stiftung, Basel.

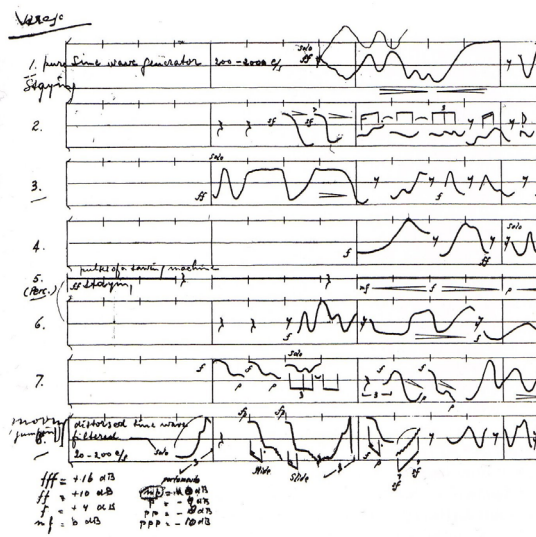

Fig. 4 A graphic sketch of *Poème électronique (Electronic Poem)*. Philips International B.V. Eindhoven.

4. Only recently, a fourth version of this graphic score appeared in the New York Public Library, and by mistake it includes a note *"Déserts* (Deserts)".

5. A fifth copy is an actual recording of jazz improvisation, as a transcript by Varèse's assistant from Columbia University, Chou Wen-Chung, since 2003 in the possession of Paul Sacher Stiftung. The recording includes eight lines, and at first glance, this score is identical with score no. 3 from the Philips archives. This is a graphic base for jazz improvisation, which is suggested by notes as "solo", "cadenza" or "ad lib" (Fig. 5).

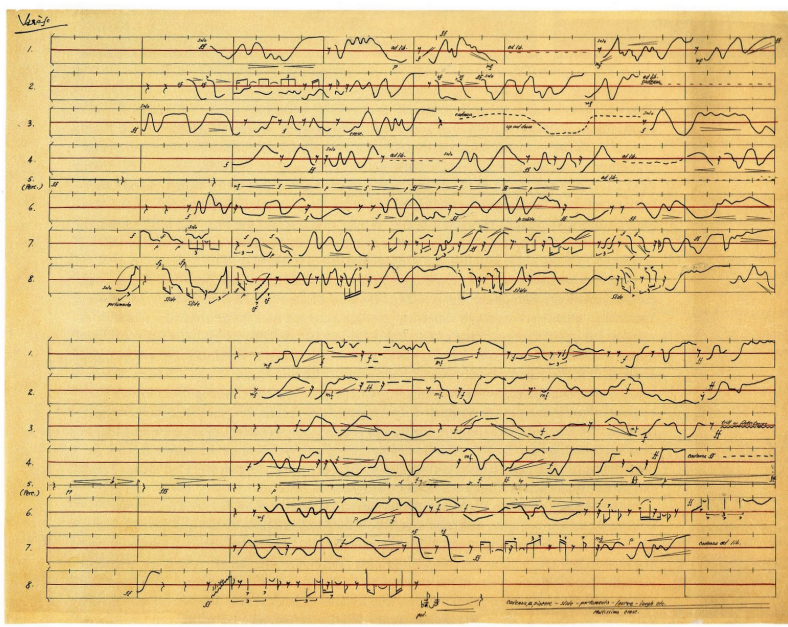

Fig. 5 Graphic recording of a jazz improvisation, 1957.
Transcribed by: Chou Wen-Chung.

Between March and August 1957, Varèse participated in several jazz jam sessions in New York. At that time, he was already engaged in his work on *Poème électronique (Electronic Poem)*. These jam sessions were also participated by (among others) Art Farmer (trumpet), Teo Macero (tenor saxophone), Hal McKusick (clarinet and alto saxophone), Hall Overton (piano), Frank Rehak (trombone) and Ed Shaughnessy (percussions).

Other occasionally participating musicians were Earle Brown, John Cage, Merce Cunningham and John Tenney. According to Mattis, Tenney's string quartet *Parabolas and Hyperbolas for Edgard Varèse* (published 1973) surprisingly bears similar features as Varèse's score. According to Earl Brown, the manner of arranging (head arrangements), which Hal McKusick learned in the band of Woody Herman was an absolute novelty for Varèse.[37] These jam sessions were also documented on a tape (Paul Sacher Stiftung). Furthermore, in the New York of that time, Varèse was fairly known amongst jazzmen. Charlie Parker wanted to take private composition lessons with him (autumn 1954), but Varèse travelled to Paris soon after. After his return in May 1955, Parker was already dead due to drug overdose.[38]

Varèse's decision to pursue analysis and written recording of jazz improvisations may seem surprising, but only until we realise what jazz actually represented. It was already in the 1920's that jazz was perceived as an audio reflection of mechanical civilization: "[jazz] *bears all the marks of a nerve-strung, strident, mechanized civilization*", claims J. A. Rogers in 1925.[39] From this perspective, Varèse's interest in jazz is only a logical continuation of his efforts to capture the "Zeitgeist" through corresponding means. His perception of jazz, as not a fallen popular music, but a full-fledged part of music, which is (often in a more flexible and concise way) able to react to the demands of its time, is rather likable.

In August 1957, Varèse takes his written recordings of jazz improvisations with him to Europe. He also takes gramophone records of Charles Mingus, Teo Macero and others. He arrives in Rotterdam from U.S.A. on 02 September 1957 and from there continues to the Philips headquarters in Eindhoven, where he starts work immediately. He stayed at a hotel and his only activity was to supervise and manage technicians working in sound laboratories. And although the company provided him with excellent technology and equipment for his work (a special studio was built for the purpose of creating *Poème électronique; (Electronic Poem)*), the management's negative sentiments about selecting him for this work unfortunately reflected in the working relations as well. Sound engineers,

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37 MEYER – ZIMMERMANN, op. cit., 2006, p. 312–313.

38 Ibid., p. 314.

39 ROGERS, J. A. Jazz at Home. In Alain Locke (ed.). The New Negro. New York: Touchstone, 1925, p. 216-224. Cit. according to THOMPSON, E. A. *The soundscape of modernity: architectural acoustic and the culture of listening in America, 1900–1933,* p. 131.

there at hand for Varèse, only executed his orders and wishes reluctantly and with delays. W. Tak and J. W. Bruyn were among them.

In September of the same year he writes a letter to his biographist, Odile Vivier[40], that his work on *Poème électronique (Electronic Poem)* is going more than slow due to complaints by his colleagues. We have a perspective on mutual cooperation from the other side, in the form of memories of Philips sound engineer, W. Tak.[41] When composing, Varèse would supposedly mainly deal with the character of sound image, while the technical personnel were usually left to capture the "intonation" (the question is: what are we to understand that this term means?). His composition was characteristic for enormous richness of sound, the implementation of which was often associated with big problems. Mutual communication between engineers and the author was probably the biggest obstacle, as there was no appropriate terminology to specify individual sounds.

The sounds used would often be given comic English onomatopoeic names, such as "*powipp, ticketock, fupp, way-way, chook-a-chook, voop, chu-cha-cha-chu*" etc. Names as "finger-whistle", "a jet", "a parameter" or "a parabola" (due to their sound characteristic or the course) were also used. A number of sounds were also named after sound associations: a tram, a jet, cymbals, etc. Not only electronically created signals were used, but also concrete sounds recorded with a microphone: piano chords, the sound of a bell, solo and choral singing, singing of the monks, percussions, recordings from factory halls, which once electronically processed (through filters, etc.) were saved on a magnetic tape.

He also used a section from his *Étude pour Espace ((Spatial study)* (a solo soprano part by Barbara Gibson) and from *Déserts (Deserts)* (Varèse wrote JAZZ in capitals on a page, including the measures 231–237).[42] A sketch archived with Philips also includes a note, related to jazz: "Jazz-spurts".[43]

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40 Cit. in VARÈSE, E. *Écrits (Works)*. Christian Bourgois Éditeur, 1983, p. 148.

41 *Philips technische Rundschau(Philips Technical Review)*, 20/2, 1958/9, p. 43 f. Cit. in MOTTE-HABER – ANGERMANN, op. cit., p. 76.

42 MEYER – ZIMMERMANN, op. cit., p. 310.

43 In: TREIB, op. cit., 1996, p. 185.

A visionary

The fact that the Philips management was not entirely happy with the choice of Varèse is also documented by the following letter that L. Kalff wrote to Le Corbusier on 29 November 1956:

"*The information we have received until now about Mr. Varese's work is not very comforting. It appears that more and more Mr. Varese is concentrating on musique concrete and that he is thus avoiding all the traditional instruments and their compositions. This is just the thing that we are trying to avoid. Naturally, we wish to respect your desire to collaborate with Mr. Varese but we have always reserved the [final] decision on this subject until we have heard the most recent works of Mr. Varese on records. Thus, we wish to make the decision on this subject after our meeting with Mr. Varese and you in Paris.*"[44]

The first person to support Varèse was Xenakis, who also advocated him as a symphonic music composer. The requested meeting between Kalff, Varèse and Le Corbusier took place on 20 December 1956 in Paris. However, by the end of February 1957, Varèse received no message from Philips pertaining to their decision on his further steps.

In April 1957, a meeting between the Philips representatives, Le Corbusier and Xenakis took place in Eindhoven. Xenakis informed Varèse about the results of this meeting through a letter in June. He finally had specific information pertaining to technical equipment that will be available for him: about 300 speakers, placed around the internal surface of the shell, with the possibility of creating "routes of sound" in space. Stereophonic effect was to be achieved by using about 10 magnetic command points that were to regulate:

a) a group of speakers
b) sound routes
c) individual registers (bass – mid range – treble)
d) special mixes, etc.

There should be harmony between sound and light, but a composer absolutely cannot let this restrict him. Sample presentation was to take place in June or July in the presence of the composer.[45]

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44 Fondation Le Corbusier Paris (Le Corbusier's Foundation Paris) (FLC), In TREIB, op. cit., p. 171.

45 A letter from Xenakis to Varèse, 11 June 1957. Archived at FLC.

A few weeks later, Le Corbusier sends Varèse a twenty-seven page long scenario of the film and at the same time, he points out that the entire poem should culminate at point 19 – a transition to white, synchronised with the composition. Until then, the audio and visual elements can be independent. Kalff only replied to Varèse around the end of July and confirmed a previous telegram telling Varèse that he is expected in Eindhoven on 02 September. He presented him the frame of the technology that he would be able to work within: motion and sound control in space, reverberation, echo. Two engineers were to be at hand, W. Tak and S. L. de Bruin. The composition should be completed by February or March, when it is to be performed in the pavilion, in order to be able to tune spatial projection of sound. Although the multimedia piece work was prepared in a team, it was individual work. And while synchronizing certain elements was essential (film and light), for some it was on the contrary undesirable or unnecessary (image and sound, sound and architecture, etc.). On 30 November 1957, Varèse writes to Xenakis, that his work is proceeding in the slowest possible pace but he expects to reach a second 241 soon (i.e. half of the composition).[46] At the turn of January and February 1958, Philips committee was played a short sample of *Poème (Poem)*, which sparked controversial reactions. The biggest opponent was Philips who asked to have its disapproval with the composition to be included in the minutes of that meeting:

"*He considers the sounds composed by Varèse as not representative of the ideals of Philips and the free Western world. If we are spending money to add to the confusion, he is not willing to support the plan.*"[47]

As documented by several letters, Varèse fought with the Philips engineers for the whole duration of his work on this composition. He was outraged that his colleagues are presenting common sound effects and clichés, and he accepts that on several occasions he exploded and crossed the boundaries of diplomatic correctness.[48]

After four months, half the work is done. The first part of the composition is already recorded on 3 magnetic tapes, and the second part is on its way there (*bonne voie d´esquisse*)*(a good way towards the sketch)*.[49]

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46 OUELLETTE, op. cit., p. 198.

47 s.d., at the turn of January and February 1958. Internal material, Philips Archive.

48 A letter from Varèse to Chou Wen-Chung, 18 December 1957, A compilation by Chou Wen-Chung, PSS. Cit. according to MEYER – ZIMMERMANN, op. cit., 2006, p. 317.

49 Cit. in VARÈSE, E. *Écrits (Works),* op. cit., p. 148.

Xenakis continues to support Varèse: "[...] *don't let them make you give any ground aesthetically. Le Corbusier asked you to create this music. He is obliged to stand up for you. He will defend you to the end* [...]"[50] and immediately informs Le Corbusier about trouble on the part of Philips.

At that time, the architect is in northern India where he participates in urban and architectural design for the city of Chandigarh (1950–1965). He immediately writes an indignant letter to the Philips management:

"*It* [Poème électronique] *cannot be carried except by Varèse's strange music.* [...] *There cannot for a moment be any question of giving up Varèse. If that should happen, I should withdraw from the affair.* [...] *Varèse is a great name in modern music.*"[51]

Philips Company representatives were not satisfied with Varèse and for that reason they secretly contacted Henri Tomasi (1910–1971) who became famous especially for his scenic music. He actually composed a piece *Poème électronique (Electronic Poem)* that was to be a replacement for Varèse's composition, if Le Corbusier indeed withdrew from the project. The cast and composition were fairly traditional: baritone, bass, soprano, mezzo-soprano, contralto and orchestra. Reportedly, in spring 1958, the composition was presented to Philips representatives, with Le Corbusier and Xenakis present but it was found unacceptable.[52]

The Philips management apparently got the impression that Varèse does not know what he wants and what he should do, as his idea was fairly abstract and open, and it was only specifically executed once actual work with material was being done in a studio. The only certainty was a plan for the projection of sound, as a result of musical thinking in space, which was to find its own route.[53]

The material of the composition was recorded on three mono tapes that were to be played simultaneously. Later, some sounds from tape 2 and 3 were taken out, fitted with spatial effects (panorama, reverberation) and

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50 A letter from Xenakis to Varèse, 02. 01. 1957, cit. in OUELLETTE, op. cit., p. 197.

51 In OUELLETTE, op. cit., p. 199.

52 LOOTSMA. *Poeme Electronique: Le Corbusier, Xenakis, Varese Poème électronique (Electronic Poem) Le Corbusier, Xenakis, Varèse)*, p. 137. In TREIB, op. cit., 1996, p. 194; Also compare MOTTE-HABER, H. de la. *Die Musik von Edgard Varèse* (Music by Edgard Varèse), op. cit., 1993, p. 98.

53 SCHULLER, G. *Conversation with Varèse*. In Perspectives of New Music 3/2 (spring–summer 1965), p. 37. Cit. according to MEYER - ZIMMERMANN, op. cit., 2006, p. 315. Compare MOTTE-HABER, H. de la. *Die Musik von Edgard Varèse (Music by Edgar Varèse),* op. cit., 1993, p. 98.

recorded on a fourth, stereophonic tape. In the final stage, these five tracks were mixed back into three tracks and recorded on a 35mm tape. From this tape, *Poème électronique (Electronic Poem)* was distributed to over 300 speakers on the pavilion walls and 25 bass speakers on the floor.[54]

The first phase of executing *Poème électronique (Electronic Poem)* in the laboratories of Philips consisted of creating three layers of organised audio material, which was saved on a three-track magnetic tape. This phase was carried out exclusively in Eindhoven studio and continued from Varèse's arrival on 02 September 1957 until March 1958. Afterwards, phase two was to follow consisting of experiments with spatial distribution of this composition.[55] Creating 480 seconds of music therefore took the team of Philips engineers under Varèse's leadership some incredible six months. *Poème électronique (Electronic Poem)* was, therefore, created in a theoretical average pace of 80 seconds of sound per month.

Spatial distribution of sound

Phase two of the implementation consisted of spatial distribution (or more precisely projection) of sound in the Philips Pavilion. Sound was recorded on three tracks of a magnetic tape, the volume and quality of which could be changed.

The recording was saved on one track of a three-track tape. Track two and three were reserved for reverberation and stereophonic effects. Tape two, this time with fifteen tracks, was meant for saving control commands for controlling spatial projection of sound in the pavilion. The tapes had dimensions of a traditional cine-film (35 mm), with perforations on the sides. Each of the tapes was played in its own equipment (which were duplicated, just to be sure).[56] So there were, in total, 4 devices in the control unit.

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54 VALLE, A. – DOBSON, R. et al. *Varese's Poème électronique (Electronic Poem) regained: Evidence from the VEP project abstract* [online]. [cit. 21. 03. 2009] Available from: <http://www.edu.vrmmp.it/vep/>.

55 A letter from O. Vivier, February 1958. Cit. in VARÈSE, Edgard. *Écrits (Works).* Christian Bourgois Éditeur, 1983, p. 149.

56 TREIB, op. cit., p. 203.

Poème électronique (Electronic Poem) was then produced by 425 speakers, through 20 one-hundred watt amplifiers.[57] Speakers were joined to groups and sound routes (*routes de sons)* along the pavilion's vertical ribs in order to achieve various effects: psychological perception of music, rotating in pavilion space, music coming from different directions, as well as e.g. the reverberation phenomenon.[58] Groups of speakers were placed above the pavilion entrance, above the pavilion exit and at the top of three ceiling concaves.[59] Apart from vertical routes, one horizontal route was also designed.

Recording from three tracks of magnetic tape were distributed through two channels. Channel one (track 1+2) included the group of speakers above the pavilion's entrance and exit, and the horizontal group of speakers. Channel two features speakers in "sound routes". The intention was to surround and engulf a listener in sound, regardless of where he/she was placed.[60]

"[...] *one no longer hears the sound, one finds oneself literally in the heart of the sound source. One does not listen to the sound, one lives it.*"[61]

The pavilion officially opened on 17 April 1958, but had to be closed again due unfinished work and incomplete audio technology. *Poème électronique (Electronic Poem)* premiered on Friday, 02 May 1958. Varèse informed Xenakis about it: "*Your piece, which comes over as sound and spreads admirably – and mine, which comes over well too.*"[62] The pavilion was opened to public one week later.

Production in the pavilion took place in half-hour intervals, every day from 10 a.m. to 6 p.m. The entire production lasted 10 minutes, out of which 8 minutes (480 seconds) was given to *Poème électronique (Electronic Poem),* and 2 minutes to Xenakis's *Concret PH.* The entire show was fully automatic. During the Fair, which lasted from 20 May to the end of September 1958, the pavilion was visited by about 1.5 million visitors. The

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57 The number of speakers differs in individual sources; this information is directly from Varèse. O. Mattis states 400 treble speakers (in 12 routes) + 25 bass speakers, or also 325+25. Ouellette states 150+25.

58 VARÈSE, Edgard. *Écrits (Works)*, op. cit., p. 151.

59 OULLETTE, op. cit., 1966, p. 150.

60 Ibid., p. 201.

61 [J. O.], *Le Poème électronique (Electronic Poem)*. Radio et T.V., No. 5, May, 1958, pp. 349–355., cit. in OUELLETTE, op. cit., p. 202.

62 In OUELLETTE, op. cit., p. 199.

World Fair finished on 19. 10. 1958 and that is when the pavilion was also closed.

Le Corbusier and Varèse had only the words of utmost recognition for one another. Once the Fair ended, Le Corbusier in his letter dated 17. 11. 1958 identified Varèse and his music to be the true core and support of *Poème électronique (Electronic Poem)*. Varèse after some time assessed *Poème électronique (Electronic Poem)* as follows:

"*It is an indictment of inquisition in all its forms. When the element of surprise has vanished, the tragic density of the work appears and its humanity, its singular beauty. That is what two million spectators were able to feel in Brussels. And this great dream was made possible, in its reality, by the determination and the lucidity of Le Corbusier.*"[63]

The project soon gained considerable publicity in the press. Once Varèse returned to U.S.A., a newspaper *The Village Voice* and a record company *Record Hunter* arranged for a concert to be held at Village Gate, a small theatre in Greenwich Village, where Varèse lived. On 09 November 1958, the American premiere of *Poème électronique (Electronic Poem)* could be heard. Varèse brought a three-track monophonic version of his composition from Eindhoven to U.S.A., where it was synchronised again, and transferred to stereophonic version, which was then published by Columbia Records on a gramophone record under a catalogue number MS 6146. We could say that *Poème électronique (Electronic Poem)* finally meant an ineffaceable entry of Edgard Varèse to the history of music (or more precisely sound art) of the 20th century. Other versions of Varèse's compositions were not far off. From 27 to 30 November 1958, Leonard Bernstein performed *Arcana* in Carnegie Hall, on 20 February 1959, a concert at Sarah Lawrence College took place, and *Poème électronique (Electronic Poem)* and *Octandre* could be heard. In 1957–58, Varèse's work was heard all over the world (London, Japan, Cologne, and Stockholm).[64]

63 Cit. ibid.

64 VALLE, A. et al. *Varèses Poème électronique (Electronic Poem) regained: Evidence from the VEP Project* [online]. [cit. 12. 9. 2008]. Available from: <www.edu.vrmmp.it/vep/>.

Archaeological approach to multimedia

Although the Philips Pavilion was later dismantled, the audio and visual elements of the project were preserved.

Not only the sound system, but also material, recorded on magnetic tapes by Varèse together with the sound engineers in Eindhoven, was transported to a studio for electronic music (STEM) in Plompetorengracht in Utrecht, established in 1960. Here, in the 1960's, Frits Weiland from four tapes (3 mono + 1 stereo) prepared one four-track tape that was called as "master". This tape became the basis of most European CD recordings of *Poème électronique (Electronic Poem)*, and the 4 original tapes were stored in the archives of Utrecht University. Later, STEM was renamed as Institut voor Sonologie and in 1986 it was transferred to the Royal Conservatory of the Hague. In 2000, Kees Tazelaar discovered the original tapes and performed computer restoration, which mainly consisted of better synchronizing of the 5 tracks (on 4 tapes: 3 mono tracks +2 stereo tracks). On this occasion Tazelaar found that the recording also contains another version of Xenakis's interlude *Concret P–H II* in three mono tracks.[65]

Around the beginning of the 21st century, the idea for restoration of *Poème électronique (Electronic Poem)* resonated in professional circles. Four European research centres participated in the project of "resurrection" of Philips Pavilion and its unique architectural and sound environment: VR&MM Park and Università di Torino, Department of Informatics at University of Bath, Department of Communication Science at Technische Universität Berlin, and Instytut Informatyki Politechniky Śląskej Gliwice.[66] Project objectives were worded as restoration of a multimedia work through the means of virtual reality, and making it accessible to the general public. Alice Foundation, based in Eindhoven (Netherlands) seeks to (re)construct the pavilion directly at one of the main city streets. The original pavilion built for Expo 1958 in Brussels was dismantled due to apprehensions about the technology being exposed to adverse climatic conditions.

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65 VALLE, A. et al. *Varèses Poème électronique (Electronic Poem) regained: Evidence from the VEP Project* [online]. [cit. 12. 9. 2008]. Available from: <www.edu.vrmmp.it/vep/>.

66 Project documentation is available to public from: http://www.edu.vrmmp.it/vep.

Fig. 6 Simulation of Philips Pavilion interior.
Source: www.edu.vrmmp.it/vep.

The entire complex of scientific approaches, arising around the Philips Pavilion reconstruction, can simply be called "multimedia archeology".[67] Here by the term multimedia, we understand complex art forms including various media. A characteristic feature of multimedia is the fact that they respect autonomy of the confronted layers or elements (image, sound, text, movement, gestures, environment, etc.), which work just as well as part of the whole work as independently.[68]

Most previous attempts for reconstructing this project were mainly focused on the audio element. There are, at least, three commercial stereo versions of Varèse's music and since 2003 Concertgebouw in Brugge hosts its fourteen-channel version as a permanent installation (execution by Kees Tazelaar).

The audio and visual aspects were also reproduced on a DVD (Piet Lelieur, Ghent, Belgium, 2003), in installations (Bianchini, L., Casali, V., Lupone M. *Varèse-Le Corbusier. Scene di un pensiero in rivolta: Ricostruzione del Poème électronique (Electronic Poem)*, Proceedings of ICMC 00, Berlin, 2000.) or in virtual reality environment (V. Zouhar, Lorenzy R., Musil T., Zmölnig, J., Höldrich, R. *Hearing Varèse's Poème électronique (Electronic Poem) inside a virtual Philips Pavilion*, Proceedings of ICAD 05, Limerick, Ireland, July 6–9, 2005).

67 LOMBARDO, V. et al. *Archeology of Multimedia.* ACM Multimedia 2006, p. 1 [online]. [Cit. 15. 9. 2009]. Available from: <www.edu.vrmmp.it/vep>.

68 Compare basic monographic publications and lexicons on this subject: PACKER, R. – JORDAN, K. *Multimedia: From Wagner to Virtual Reality*. New York: W. W. Norton, 2002; COOK, N. *Analysing Musical Multimedia*, Oxford Uni Press, 1998; SEXTON, J. (ed.) *Music, sound and multimedia.* Edinburgh University Press, 2007; JONES, S. (ed.). *Encyclopedia of New Media: An Essential Reference to Communication and Technology*. Chicago: University of Illinois, 2002.

Poème électronique (Electronic Poem) analysis

Poème électronique (Electronic Poem) is a key piece of electroacoustic music, not only because of consistent combination of material (by which it adopts methods of French concrete music and German electronic music) but also due to the highly sophisticated system of its spatial projection. The subject of our analysis is, however, mainly its tectonic structure.

The specifics of electroacoustic music require completely different analytical approaches than music with traditional notation. The difference is mainly in its continuous nature. While traditional music represents a scalar system of discrete variables representing parameters: pitch (frequency), length (duration), colour (spectral characteristics), power (intensity) or possibly placement of a tone/sound in space[69], electroacoustic music compositions dissolve the discrete parameters to a single continuum.

Given the available resources, we have two analytical methods: audio analysis supported by analysis of the visual spectrographic representation of the work.

We will attempt an analytical approach based on the final recording, which in this case is more important than the preliminary implementation scores. In relation to an electroacoustic piece, the function of a score is different than with traditional instrumental music. The fact that electroacoustic piece is executed makes it a unique original that can be reproduced unchanged (apart from the physical wear and tear of the media) again and again. In this concept, the uniqueness of *Poème électronique (Electronic Poem)* is increased even further by the fact that the environment of the pavilion is gone and thus also the possibility to listen to this piece in a three-dimensional acoustic projection. Once the Fair ended, *Poème électronique (Electronic Poem)* was mixed in U.S.A. into a two-channel stereo-recording and in this form it is generally distributed today. And although during the past years, there have been attempts for virtual reconstruction of not only the architectural but also the acoustic conditions of the pavilion,[70] so far we are not able to get familiarized with the results of this work.

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[69] See STOCKAUSEN, K. Musik im Raum. In *Texte zu eigenen Werken, zur Kunst Anderer, Aktuelles, Band 2, Aufsätze 1952–1962 zur musikalischen Praxis*. Köln: Verlag M. DuMont Schauber, 1975, p. 152–175. (Music in Space. In *Texts on my Own Works, on Art of Others, Topical, Volume 2, Articles 1952–1962 on Musical Practice/*. Köln /Cologne/: Verlag M. DuMont Schauber /Publishing House M. DuMont Schauber/, 1975, p. 152–175).

[70] VEP (Virtual Electronic Poem) – Make it New!

However, from the perspective of used audio material and its processing, the two-channel stereo-recording will work for us very well. Let us first determine the monitored parameters.

At the lowest level, pertaining to identification and analysis of actual audio objects, we can result from Stockhausen's typology of audio parameters, which is from the same year as *Poème électronique (Electronic Poem)* (1958), or Schaeffer's typology of audio objects.[71]

We subjected *Poème électronique (Electronic Poem)* to spectrographic analysis through a free available *Spectrogram* programme.[72] We, thereby, acquired visual interpretation of the audio structure in the following parameters:

- frequency (pitch of sound/ tone)
- length (duration)
- relative dynamics (relative, because we have no strictly given reference values of the original recording; we can thus only assume about the dynamic span between the lowest and the highest values within the composition)
- total sound spectrum density

For displaying the spectrogram we opted for a basic time unit of 5 sec, which is absolutely sufficient for a sound event density. On the vertical axis (frequency), we set the upper limit as 16,000 Hz; it was set empirically on the basis of preliminary analysis of the composition's frequency spectrum.

The principle of this method is segmentation of acoustic events and its morphology representation *a posteriori*. The most important objectives of this analysis should thus be the identification and comparison of audio objects, and determining the methods of working with them.

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71 Text of Stockhausen's lecture *Musik im Raum* (*Music in Space)* was printed as part of Die Reihe, no. 5 series in 1959, which makes it a period timely theoretical contribution to our discussion. Apart from the complete collection *Texte zu eigenen Werken, zur Kunst Anderer*, *Aktuelles, Band 2, Aufsätze 1952–1962 zur musikalischen Praxis*. (Texts on my Own Works, on Art of Others, Topical, Volume 2, Articles 1952–1962 on Musical Practice) Köln: Verlag M. DuMont Schauber, Cologne, Publishing House M. DuMont Schauber/1975, p. 152–175, more significant features appear in a translation by V. Lébl (*Elektronická hudba (Electronic music)*, Prague: SHV, 1966, p. 91–93). This typology is stated with a commentary in our thesis *Karlheinz Stockhausen: Hudba a prostor (Music and Space)*. Manuscript. Brno: Masaryk University, 2003, p. 12–14.

72 *Spectrogram*, version 16, manufacturer: Visualization Software, available from an Internet address: <www.visualizationsoftware.com/gram.html> [7. 7. 2008].

The form

Varèse's general concept of the form can be reconstructed based on his lecture at Princeton University (1959).[73] The ideas from this lecture only confirm Varèse's concept of a composition being the result of a dynamic process. If we combine this concept with Wronski's claim that music is rationality embodied in tones, we get a concept of a composition, which is a living organism. Each composition creates its own form, which is a result of interaction between an idea and the internal structure of such composition. The form is then further expanded or divided into various shapes or groups of sounds, it continuously changes its shape, direction and speed, and it is attracted and repelled by various forces. We can find an analogy to these processes in various natural processes, e.g. crystallization After all, Varèse's composition *Hyperprisme* ("hypercrystal" from 1922–23; the composition really has a form of crystal) is a result of such thinking. Varèse explicitly refers to the third dimension as a starting point for his deliberations, even though later in the same context he speaks of a fourth dimension.[74]

„*Je recherche, dans la projection du son, la qualité d'une troisième dimension dans laquelle les rayonnements sonores ressemblent aux rayons de lumière balayés par un projecteur* [...] *un prolongement, un voyage dans l'espace.*"[75] (*I am looking for a third quality dimension in sound projection, where sound emissions resemble the rays of light coming out of the projector* [...] *continuation, on the way through space*)

Let us now compare our findings with the analysis by Roger Kamien, French musicologist, working at universities in New York and Jerusalem.[76] His concept results from the audio analysis of material. In the complete macrostructure of *Poème électronique (Electronic Poem)* (8 minutes 5 seconds [sic!]), he finds a significant line of division at 2 min. 36 s. As we know, the general basis for any form is contrast, repetition and variation.[77] In this case, the first and the second part is introduced with the sounds of bells and concluded with sirens. A culmination of the entire composition

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73 Cit. according to OUELLETTE, op. cit., 1968, p. 60.

74 Also Helga de la Motte-Haber speaks about a fourth dimension of sound in connection with Varèse (MOTTE-HABER, H. de la, op. cit., 1993, p. 182).

75 VARÈSE, E. *Musique de notre temps (Music of our Times).* In *Écrits (Works)*, Christian Bourgois, Paris, 1983, p. 89. Cit. according to BOSSEUR, J.-Y. *Le sonore et le visuel. (Image and Sound)* Paris: Éditions Dis Voir, 1992, p. 37.

76 In KAMIEN, R. *Music: An Appreciation*. McGraw-Hill , 1992, p. 538–539.

77 Ibid., p. 71.

may be considered a seven-second section of silence, representing a paradox at the point of form culmination. We state two comments here: this intention is fully in agreement with Varèse's antiromantic attitude, which even at this point would not allow using the classic romantic cliché in the form of peak gradation (dynamic, frequency, etc.). And this was the case even despite Le Corbusier's wishes imagining a blinding white light for this culmination point. The second part differs from the first in the use of mostly tonal material, even the full section of music. There is female vocal with no specific text and church organs.

Kamien leaves the description of individual audio objects on analogy and association level, evoked in a recipient's mind by the character of these objects. This analysis is actually an analogy of a creative process in Philips laboratories, where Varèse with the sound engineers constantly searched for names of individual sound objects. Such names were then created solely on the basis of onomatopoeic comparisons. It seems that verbalizing the heard, based on sound associations, was the most direct method of seeking new names.

Identification and description of sound objects

As already mentioned above, Varèse used several types of audio material that was recorded and collected at various places and in various audio environments (organ, sounds of factory operation, etc.) or electronically generated.

Thom Holmes[78] points out to certain anachronism of *Poème électronique (Electronic Poem)*, which in 1958 is actually a masterpiece of *musique concrete (concrete music)*. At that time, the Parisian school methods already fused with the practice of the German Cologne electronic branch. But the remaining question is whether Holmes is not wrong in considering this composition to be exclusively a result of work with specific audio material, and ignores sounds generated electronically.

The audio material from *Poème électronique (Electronic Poem)* could be easily divided into the following categories:

1. concrete (and transformed) sounds of musical instruments and human voice
2. concrete (and transformed) sounds of machines
3. other concrete sounds

78 HOLMES, T. *Electronic and experimental music*. London: Routledge, 2005.

4. electronically generated sounds

The first group includes bells, woodblocks, sirens, bongos, jingle bells, other percussions, organs, a solo female voice and men's choir.

The second group can include: a jet plane and factory hall operation.

The third group are sounds resulting from a difficult to identify source: scratching, knocking, clanking, shuffling, etc.
The fourth group are abstract sounds generated electronically: bleeping, buzzing, whistling, etc.

If we apply the analytical approach, based on typo-morphological classification of audio material outlined by Schaeffer in his classification of sound objects, to the macrostructure of *Poème électronique (Electronic Poem)*, we will acquire a list of sound objects and the way of working with them (the list cannot be included due to extent of the study.)[79]

1. The **contrast** principle, which Varèse works with on various levels of arranging audio material, appears most clearly here. On the level of pitch-time relations, it is always the immediate confrontation of two registers, the high and the low, often in sounds of the same characteristic.

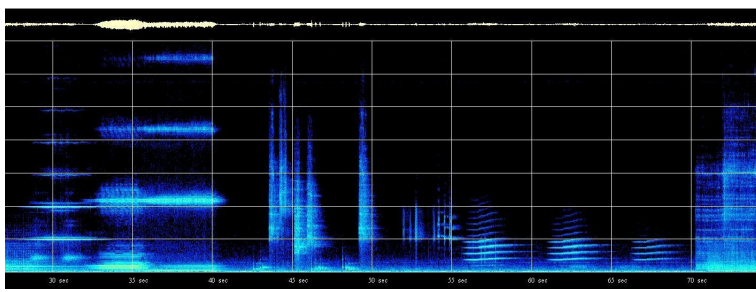

Fig. 7 Example of contrast in the area of pitch relations, frequencies (27.–75. sec.).

79 SCHAEFFER, P. *Traité des objects musicaux (Essay on Musical Themes)* Paris: Seul, 1966.

The element of contrast is also often applied in the level of dynamic course (*envelopes* of sound, as we would call it today). Here there is a clear tendency of the composer to alternately apply longer areas (either cyclic or stationary) in contrast to very short events (often associated into groups with prime number of items: 2, 3, 5, 7).

Confrontation of technical/industrial origin (machines, an airplane, bombs, etc.) and man made material (choir and female soloist vocals) also gives a contrasting impression. This principle is also maintained at a visual level (shots of a man, alternated by shots of architecture and artistic or technical artefacts).

2. Immediate **triple repetition** of an object with continuous modification of one parameter (most frequently the intensity of sound, see e.g. 55–70 sec.) is common for Varèse.

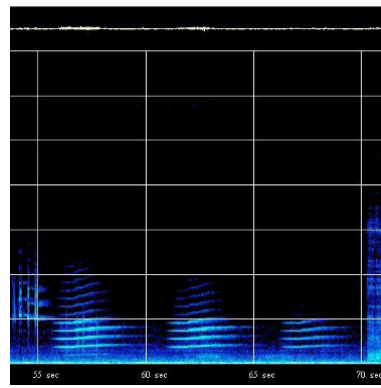

Fig. 8 Characteristic triple repetition of an sound object (55.–70. sec.).

3. In terms of the audio material sources, **the composer skilfully combines sounds of machine, instrumental and of human origin**. And while at the beginning of the composition, various sounds form an integral unit, throughout the composition, increasingly extreme sounds are gradated and combined: a female voice and military drumming or a bel canto vocalise and the roar of a jet plane.

4. Varèse **does not use the method of sharp divisions** (cuts) between the individual areas (blocks), but he uses mutual tying, overlapping and joining

the blocks together. That results in blurred transition of block type, which is also characteristic of Varèse's earlier compositions.

5. In places there is an apparent **inclination to thinking in the decimal system**, the composer works with five or ten-second blocks.

6. If throughout the composition, any **melodies** in a traditional sense appear, they are very short (max. 10 sec.) and do not create a continuous melodic line but rather an area of isolated tones of one instrument (e.g. 90.–93. sec., 99.–106. sec. or 385.–395. sec.).

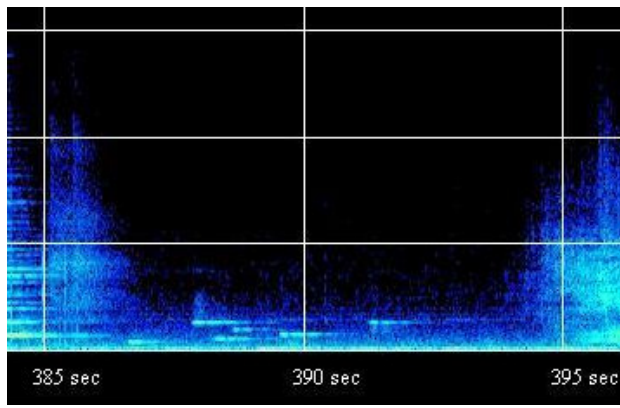

Fig. 9 "Micromelody" (385.–395. sec.).

7. Probably the most distinctive characteristic sound of Varèse's compositions are the hyperbolic sound curves, continuously used since *Amériques (Americas).* They are becoming the author's "signature" of a sort. And it is not incidental that the entire *Poème électronique (Electronic Poem)* ends with it.

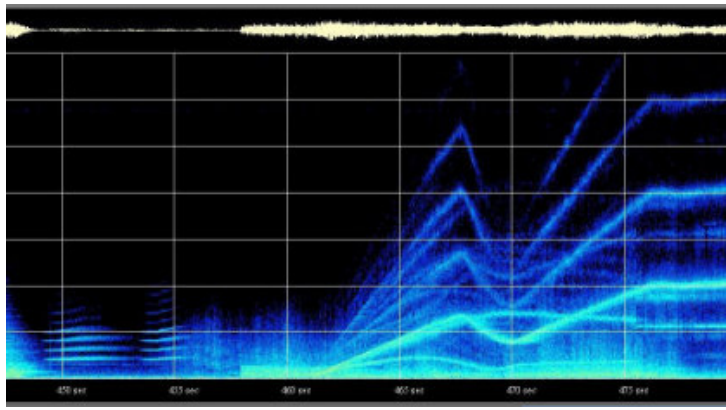

Fig. 10 Final hyperbolic curves (450.–480. sec.).

Summary

Poème électronique (Electronic Poem) is a type of electronic audiovisual installation, or more precisely, environment. Both these terms are synonymous to a certain extent, and they stand for a construction or an assemblage created for a specific area, which it dominates or even directly creates it.[80] A significant feature of this is the recipient's absorption/immersion in an artificially created environment. The oldest attempt is usually declared Wagner's concept of collective artwork (*Gesamtkunstwerk*), which also works as a historical milestone for multimedia art. This type of art is defined by a synthesis of several types of art: usually image, sound, text and movement (action, film, animation).

Let us now try and summarize the types of art, and specific artworks, which fall under this category, forming the complex *Poème électronique (Electronic Poem)*. Hierarchically, Iannis Xenakis's *Metastaseis* is at the highest level. The score of this composition, after its transformation into a three-dimensional space, works as an architectural container for other audiovisual contents including: a film, according to Le Corbusier's scenario, two sculptures (a geometrical polygon and a female body model), luminary element (*ambiances* and projections of specific shapes), audio element, consisting of E. Varèse's electroacoustic composition *Poème électronique*

[80] The entry Installation. In *Grove Art Online. Oxford Art Online.* [cit. 05. 02. 2009]. Available from: <http://www.oxfordartonline.com/subscriber/article/grove/art/T041385>.

(Electronic Poem), and an intermezzo by I. Xenakis, *Concret PH*. It is evidently a synthesis of at least five autonomous spheres of art (architecture, music or sound art, film, visual art/design, light art) and several concrete art works, which fall into these categories.

Xenakis speaks about the Philips Pavilion as rather a type of "geste électronique" *(electronic gesture)*, which is his term for a multimedia piece. Philips Pavilion is the beginning to a number of his other projects *Polytopes (Polytopy)* and *Diatopes (Diatopy)*), where he, as an autonomous artist now, developed principles of abstract work with independent but nevertheless synchronized media; visuals, sounds and movement in space.

The breakthrough role of *Poème électronique (Electronic Poem)* in the history of media art lies primarily in its complexity, the synthesis of several types of art and technologies, while maintaining high artistic demands, which raised three major personalities of the 20th century art: Le Corbusier, E. Varèse and I. Xenakis. Their ideas, applied in creating *Poème électronique* became the starting point for deliberation by future generations of artists.

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Music Preferences in Relation to Personality Dimensions of Adolescent Population

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Jan Evangelista Purkyně University in Ústí nad Labem

Abstract
This contribution focuses on the issue of music preferences in relation to personality dimensions, elaborated as part of the dissertation. Personality factors, together with the nature of family background, relations with peers, music media and situational variables ranking amongst the relevant factors determining the music taste of adolescents, were studied as part of the research on music preferences on a sample of 374 respondents aged 12 to 18 years. Our hypotheses were tested by means of a self-designed questionnaire and NEO personality inventory (Hřebíčková, Urbánek, 2001).

Key words
music preferences, adolescence, personality dimensions

This contribution is focused on the area of music preferences and their relation to personality factors during the adolescent period. It brings selected theoretical findings and empirical data, stated in our dissertation, called Music Preferences of Adolescents and the Ways how they can be Influenced.

FACTORS AFFECTING MUSIC PREFERENCES

Music is a natural part of adolescents' everyday life and plays an irreplaceable role in their development. It influences the forming of identity, facilitates reduced dependency on the family, it supports establishing and maintaining relations with friends and it plays a key role in acceptance by a peer group. Music could also serve as means of controlling emotions and can be an efficient strategy for coping in stressful situations.

The adolescence period is critical for forming a taste for music (North and Hargreaves, 1995, cited in North et al., 2000). Music preferences of

young people culminate from various internal and external determining factors, which can include e.g. the impact of music media, peer group, family, social standards and conventions, and the situational and personality variables. These factors are depicted in chart form (see Fig. 1) that we created. In this contribution, we will pay attention to the aspect of personality dimensions that were included in the last mentioned group of

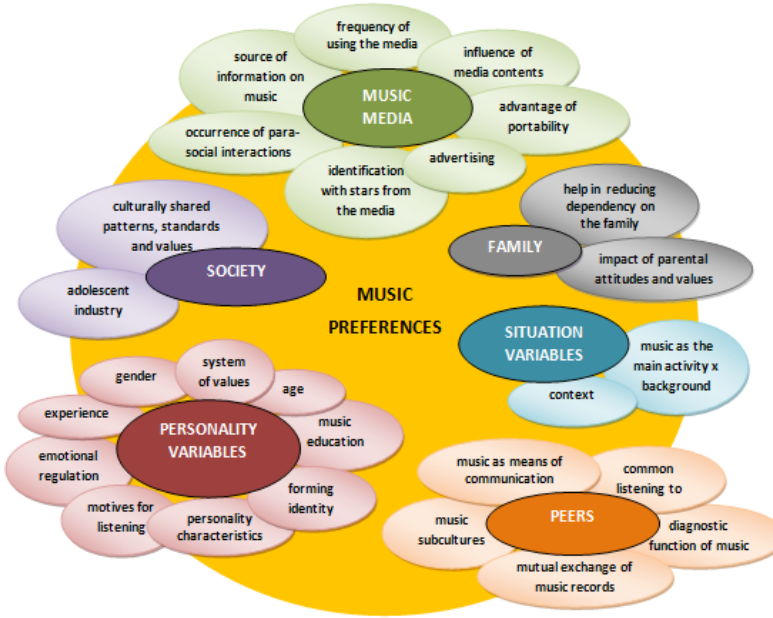

Fig. 1: Factors impacting music preferences

MUSIC PREFERENCE AND THE PERSONALITY OF AN INDIVIDUAL

The influence on music preferences varies throughout one's life; initial music preferences drawn from the parents, later on from the peers, and only upon acquiring a higher level of autonomy does the personality step in to play an important role in selecting the preferred music for listening (Rentfrow, Gosling, 2003). Music preferences can e.g. provide information

about openness towards experience, extraversion, political orientation or intelligence (see below).

Young people believe that their music preferences give out vast amounts of information about their personality and their personal opinions, and likewise, information on music preferences of another person enables them to learn better about his/her personality. All in all, music preferences, together with the character of their room and hobbies, were regarded by the respondents to be an important source of information on personality characteristics (Rentfrow, Gosling, 2003). Opting for a certain style or genre of music enables presenting others with information on who they are and how they would like to be perceived by their surroundings (Macek, 1999; North et al., 1999; Rentfrow, Gosling, 2003).

Testing methods to measure personality through music preferences

Research results support the hypothesis that music preferences are partially predictable from the personality traits of young people during adolescence (Rentfrow, Gosling, 2003; Delsing et al., 2008; Miranda, Claes, 2008).

The first person who came up with the idea of using music to learn about one's personality was Cattel. He believed that preference for certain style of music provides important information about the involuntary personality aspects, which are overlooked in most personality questionnaires. He also opinioned that music preferences are the window to the subconscious (Rentfrow, Gosling, 2003, pg. 1237).

Schultz and Lange (1963), who studied the potential value of music as a stimulus for projective tests, were of the same opinion. Both authors of this experiment perceived music as *"naturally non-representative"*, i.e. *"having an immediate relation to emotional experience"*, which enables satisfying the subconscious emotional needs without participation of the defence mechanisms that could intervene with the administration (Schultz, Lange, 1963).

Cattel, together with Anderson (1953, cited in Rentfrow, Gosling, 2003), designed the so-called *I.P.A.T Music Preference Test*. It was a personality questionnaire where respondents rated on how much they like a given music sample (from a total number of 120 extracts from jazz and classical music). Sattell and Saunders (1954, cited in Rentfrow, Gosling, 2003)

subsequently identified 12 factors of music preferences. Each one of them was supposed to represent involuntary reflexion of a certain personality characteristic (e.g. rebelliousness, conservatism; Rentfrow, Gosling, 2003).

For the purpose of their research, Rentfrow and Gosling (2003) created a STOMP (*Short Test Of Music Preferences*) questionnaire, containing 14 musical genres (alternative music, blues, classical music, country music, electronic / dance music, folk music, heavy metal, rap/ hip hop, jazz, pop, gospel music, rock, soul / funk, film music[1]), which are rated on the Likert scale from 1 (not at all) to 7 (excellent choice). Based on the analysis of responses from 1,704 university students (1,058 women and 633 men), who participated in the study, four factors were identified and duly described. Rentfrow and Gosling (2003) subsequently presented the STOMP questionnaire for the purpose of validation to a sample of 1,383 university students together with other methods[2], measuring ten personality characteristics (extraversion, agreeableness, openness to experience, neuroticism, conscientiousness, interpersonal dominance, social dominance, self-esteem, degree of depression and the so-called *"blirtatiousness"*[3]), self-assessment in six areas (political liberalism, political conservatism, physical attractiveness, wealth, sports-mindedness and intelligence), and verbal and nonverbal cognitive abilities.

Relation between personality dimensions and musical preferences according to Eysenck

Hall (2003) results from a three-dimensional concept by Eysenck by differentiating between three basic personality dimensions – extraversion,

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1 Authors of the study excluded film music (soundtrack) from the factor analysis, as it may contain musical styles of all genres.

2 The following methods were used in Rentfrow and Gosling study (2003, pg. 1246): Big Five Inventory (BFI; John and Srivastava, 1999), The Personality Research Form-Dominance (Jackson, 1974), Social Dominance Orientation Scale (Pratto, Sidanius,Stallworth, & Malle, 1994), The Brief Loquaciousness and Interpersonal Responsiveness Test (Swann & Rentfrow, 2001), Rosenberg Self-Esteem Scale (Rosenberg, 1965) The Beck Depression Inventory (Beck, 1972), The Wonderlic IQ Test (Wonderlic, 1977).

3 The term blirtatiousness is explained as a tendency to express one's thoughts and feelings, as soon as they occur to him/her (Rentfrow, Gosling, 2003). It expresses how fast, and often effusively people react to their partners (Swann, Rentfrow, 2001).

neuroticism and psychoticism (Nakonečný, 1995). Extroversion, which refers to an individual's degree of sociability and external orientation, can, according to Hall (2003), be related to preferences for the media and media contents enabling social interaction and having a true social function. Neuroticism is related to anxiety. Neurotic people do not like club music; they are more inclined towards modern styles of music, such as rap, dance and R'n'B (Weaver, 2000, cited in Hall, 2003).

Psychoticism refers to traits, which include egocentrism, absence of dealing with social standards and insufficient self-control. Individuals scoring high on the psychoticism scale are attracted to hard-rock music (Weaver, 2000, cited in Hall, 2003). Extraversion and psychoticism predict preferences for music with enhanced bass, such as rap and dance music (McCown et al., 1997, cited in Rentfrow, Gosling, 2003).

Five factor personality model (the Big Five)

The currently recognized five factor personality model (the so called "Big Five" model) arose from the natural way people describe themselves and it is a synthesis of the previous factorial personality analyses (E.g. Cattel or Eysenck). According to the five factor model, created by John in 1990, personality structure is supported by five strong personality factors (hence the name "the Big Five"), which are extraversion, agreeableness, conscientiousness, neuroticism, and openness (Nakonečný, 1995).

Extraversion[4] describes the level of energetic inclusion into the social environment and the level of positive emotionality; agreeableness[5] reflects the capacity to maintain pro-social and interpersonal relations; conscientiousness[6] is associated with the level of controlling impulses

[4] Extraversion is associated with positive emotions and tendencies to seek excitement and company of others within focus on the external world. On the contrary introversion is characterised by quietness, more prudency and less involvement in the external world (Hřebíčková, Urbánek, 2001).

[5] Agreeableness is a tendency to cooperate and ability to sympathise with others. It refers to individual's ability to get along with others. Individuals with higher degree of agreeableness are described as friendly, generous, with the need to help, and holding an optimistic perspective on human nature (Hřebíčková, Urbánek, 2001).

[6] Conscientiousness expresses self-discipline ability, sense of duty and aim for achievement. It refers to planned rather than spontaneous behaviour (Hřebíčková, Urbánek, 2001).

and aim orientation; openness[7] shows width and depth of intellectual experience; neuroticism[8] refers to the level of emotional instability and the level of anxious experience with the surrounding world as threatening (Miranda, Claes, 2008, pg. 280). The dimensions with the strongest connection to music preferences are probably extraversion and openness (Rawlings, Ciancarelli, 1997; Miranda, Claes, 2008).

Music preferences and the Big Five

According to the results of a study by Delsing et al. (2008), **extraversion** during adolescence is related to urban or "street" music (e.g. hip hop, R'n'B). One of the possible reasons may be the frequent connection of this type of music with the social gathering, in the form of various parties. Extraversion also positively correlates with music preferences of people with higher level of extraversion to seek such stimuli in music, which correspond with their optimum level of excitation. Such stimuli (e.g. fast pace, active rhythm) are found in soul music. No significant relation between extraversion and pop music was proven (Miranda, Claes, 2008).

According to research results (Rentfrow, Gosling, 2003; Miranda, Claes, 2008; Delsing et al., 2008), higher **neuroticism** level does not predict preference for heavy metal music, despite the fact that the lyrics in heavy metal music reflect negative topics, such as despair, mental pain, death, suicide and depression. Fans of harder music genres thus do not show higher level of neuroticism than pop music listeners (Schwartz, Fouts, 2003, cited in Miranda, Claes, 2008).

Adolescents with higher level of **openness** may be inclined to more sophisticated, non-conventional, rebellious and non-conventional music. Openness at both genders predicts higher preferences for heavy metal

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7 Openness to experience differentiates curious and creative people from conventional individuals. People with higher degree of openness appreciate art, they are sensitive to beauty, they are attracted to adventure, they are a source of unconventional ideas and notions, and they are more aware of their feelings (Hřebíčková, Urbánek, 2001).

8 Neuroticism is a tendency for experiencing negative emotions, such as anger, anxiety and depression. Individuals scoring high on the neuroticism scale have increased emotional reactivity, are emotionally instable, have lower stress tolerance, they perceive everyday situations as threatening, and they are often in a bad mood (Hřebíčková, Urbánek, 2001).

and classical music, and also higher preference for electronic music in boys. People with higher openness level also show a corresponding higher tendency for musical eclecticism due to harbouring broader music taste (Miranda, Claes, 2008; Delsing et al., 2008).

Relation of personality dimensions to music preference factors

According to the study results and according to Gosling (2003), Rentfrow's "thoughtful and complex" dimension had positive correlation with openness to experience, assessing the level of one's intelligence, political liberalism and verbal abilities; and had negative associations with social dominance and sports-mindedness (Rentfrow, Gosling, 2003). Young people, who listen to blues, jazz, folk or classical music, can be resourceful, actively interested in valuable aesthetic experience, tolerant to others and less sports-minded. They perceive themselves as intelligent, their verbal IQ is objectively higher and their political views are liberal.

Intensive and rebellious dimensions of Rentfrow and Gosling (2003) positively correlated with openness to experience, sport-mindedness, assessing the level of one's intelligence and verbal abilities. Despite the fact that this type of music evokes negative emotion, in young people who prefer rock, alternative music and heavy metal, there are no signs of emotional instability or ruggedness to others. Rentfrow and Gosling (2003) describe these individuals as curious, seeking adrenaline situations, sports-minded and intelligent.

"Positive and conventional" dimension of Renfrow and Gosling (2003) positively correlates with extraversion, agreeableness, conscientiousness, conservative political views, perception of one's own physical attractiveness and sports-mindedness. There is negative relation to experience, social dominance, liberalism, degree of depressiveness and verbal abilities (Rentfrow, Gosling, 2003).

Young people who prefer country, pop, film and gospel music have the tendency to be happy, sociable, reliable, orientated to others and sports-minded. When it comes to politics, they have conservative views and they consider themselves to be physically attractive. They are less curious and their verbal IQ is lower.

"Energetic and rhythmic" dimension of Rentfrow and Gosling (2003) has negative relation to social dominance. There are positive correlations with extraversion, agreeableness, *blirtatiousness,* perception of one's own physical attractiveness, political liberalism and sports-mindedness (Rentfrow, Gosling, 2003). Rap, hip hop, soul, funk, electronic and dance music is often listened to by sociable people who like to help others, are sports-minded, they perceive themselves as attractive and hold liberal political views.

The study by Rentfrow and Gosling (2003) did not confirm the relation between music preferences and emotional stability, depressiveness (with the exception of a third dimension) and *self-esteem*. It seems that more permanent emotional states do not have a strong impact over music preferences. According to the authors, this can be explained by the fact that in each dimension we can find songs evoking different emotions. The personality of an individual thus impacts the choice of preferred musical style and genre, while the emotional state bestows the choice of song inside the chosen musical style or genre.

RESEARCH OF MUSIC PREFERENCES IN RELATION TO PERSONALITY

Research, carried out as part of our dissertation project, was focused on examining factors affecting the listening of music and music preferences. Due to the limited capacity of this contribution, we will only focus on one of them. We will write about the relation of music preferences to the personality of an adolescent.

The research was carried out from November 2008 to February 2009 at primary and secondary schools. It was conducted during lessons, it was anonymous and participation in the research was voluntary. The actual research was preceded by a pilot study involving 54 respondents attending class 7 of a primary school and class 1 of a secondary school. The research sample consisted of 374 respondents, 167 boys (44.7%) and 207 girls (55.3%). The age of research participants ranged from 12 to 18 years. Data analysis was carried out by the SPSS statistical programme. The respondents were not selected according to random selection criteria. The researched sample is, therefore, not a representative sample. Hence, the data analysis results cannot be generalized for the entire adolescent population.

Based on our defined objective to explore the relation between music preferences and personality factors, a hypothesis resulting from the findings and stated in the theoretical part was thus formed:

H1: Musical styles and genres, rated by adolescents, correlate with the level of openness more frequently than with other personality factors. The music preferences of adolescents were measured on the basis of their attitude toward the 13 following musical styles and genres: rock, pop, hip hop, metal, electronic music, jazz, punk, Rhythm & Blues (hereinafter abbreviated as R'n'B), rap, classical music, reggae, country, folk music, blues and folklore. Our self-designed questionnaire, containing a total of 76 entries, was used to measure the music preferences.

In the research, personality dimensions include 5 factors measured by the NEO five-factor personality inventory (Hřebíčková, Urbánek, 2001), including openness, extraversion, neuroticism, agreeableness and conscientiousness. As the standards of the method only allow its use from 15 years of age, in order for the aquired data to be valid, only respondents from 15 years of age were used for statistical analysis to test the impact of personality factors. The difference between the standard and values of our sample in individual personality dimensions is illustrated in the chart (see Fig. 2).

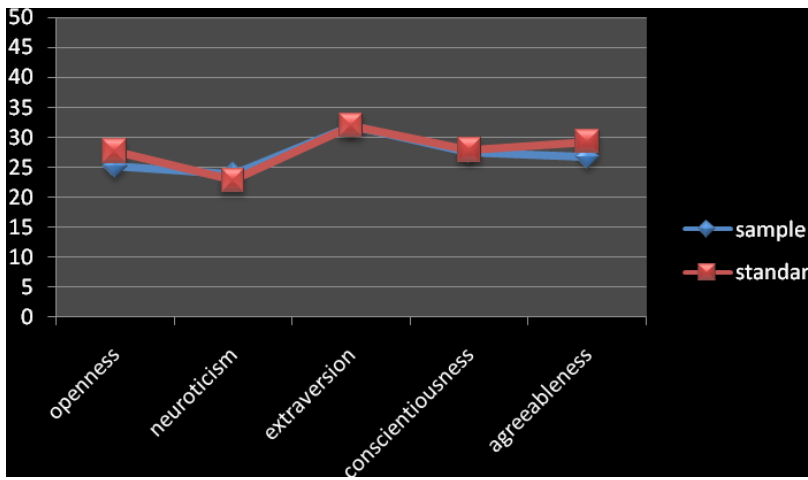

Fig. 2: Difference between the sample and standard in personality dimensions

Each personality category was divided into two groups according to the value stipulated in the manual (see Fig. 3). The respondents with a score in a given personality factor below the stipulated average fell in the category of lower level in the given variable. Respondents with final score higher than the stipulated average were included in the category with higher level of the given personality factor.

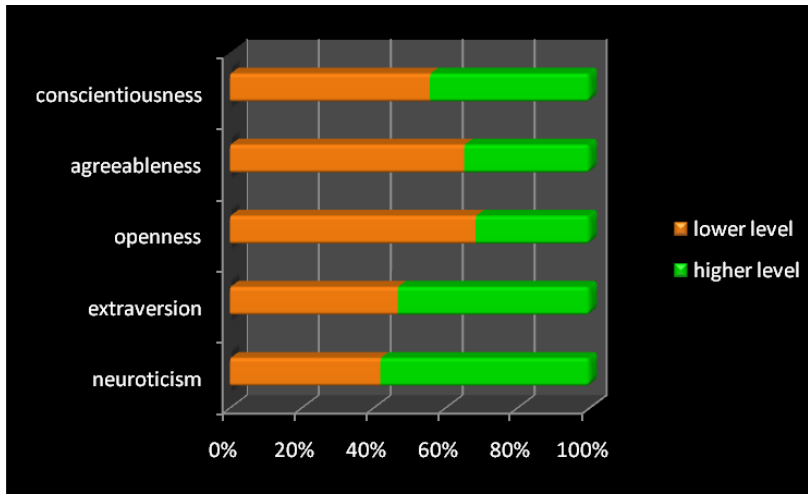

Fig. 3: Personality factors division into lower and higher levels

RESULTS

To confirm hypothesis no. 1 that the music styles and genres, rated by adolescents, correlate with the level of openness more frequently than with other personality factors, we used analysis of the answers to a question Q7[9] from a self-designed questionnaire focused on rating music styles and genres on a scale from 1 (very popular) to 5 (unpopular). Distribution of respondents' answers from the perspective of popularity or unpopularity of music styles and genres are recorded in Fig. 4. In Fig. 5, the percentage of "I do not know" answers is shown where the respondents had the option to mark individual styles and genres of music if they were not able to adopt

[9] For each musical style or genre circle a mark from 1 to 5, which you yourself would give it according to how popular is it to you (1 = very popular to 5 = unpopular).

an attitude to it or did not know it. The highest percentage of "I do not know" answers were recorded for the variables folklore, reggae, blues, folk and R'n'B.

For each rated music style and genre, correlation with the five personal dimensions that we examine – extraversion, neuroticism, openness, agreeableness and conscientiousness – were calculated. If a result was statistically significant, we continued in the data analysis. In the following text, statistically significant correlation between the variables of individual styles and genres of music and openness level is stated first, and followed by the correlation exhibited by other personality factors as well.

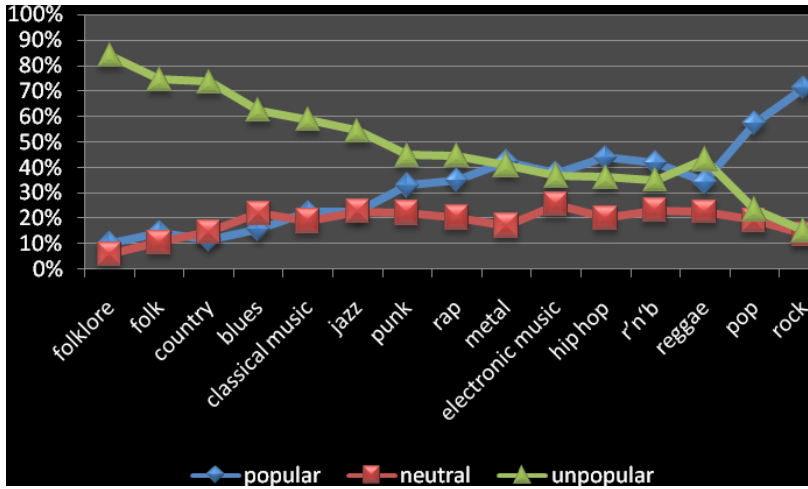

Fig. 4: Rating of music styles and genres according to their pupularity level

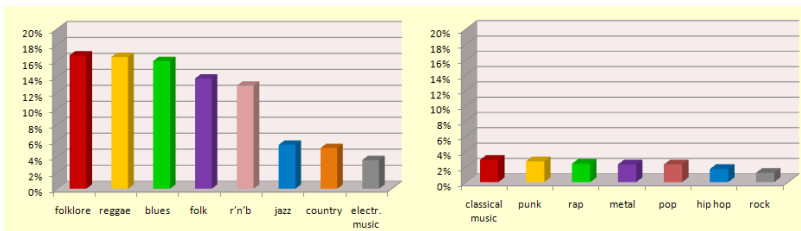

Fig. 5: Percentage of "I do not know" answers for rating individual music styles and genres[10]

[10] Percentage of "I do not know" answer was calculated from the total number of answers relating to the given variable.

Rating of music styles and genres with respect to their openness level
According to the outputs of data analysis, the variable *level of openness* correlates with 6 variables of music styles and genres – variables as *blues*, *folk*, *jazz*, *classical music*, *punk* and *rock*.

Rating of blues with respect to openness level
Equal percentage of respondents with higher as well as lower openness level (16%) marked blues as very popular. Two thirds of adolescents with lower openness level and 44% of adolescents with higher openness level gave blues a negative rating (see Tab.1, Fig. 6).

Tab. 1: Differences in the rating of blues in respondents with lower and higher openness level

	lower openness level		**higher openness level**	
	number	**percentage**	**number**	**percentage**
very popular	8	6.4%	5	9.3%
quite popular	12	9.6%	4	7.4%
neither popular, nor unpopular	22	17.6%	21	38.9%
quite unpopular	34	27.2%	14	25.9%
unpopular	49	39.2%	10	18.5%
Total	**125**	**100%**	**54**	**100%**

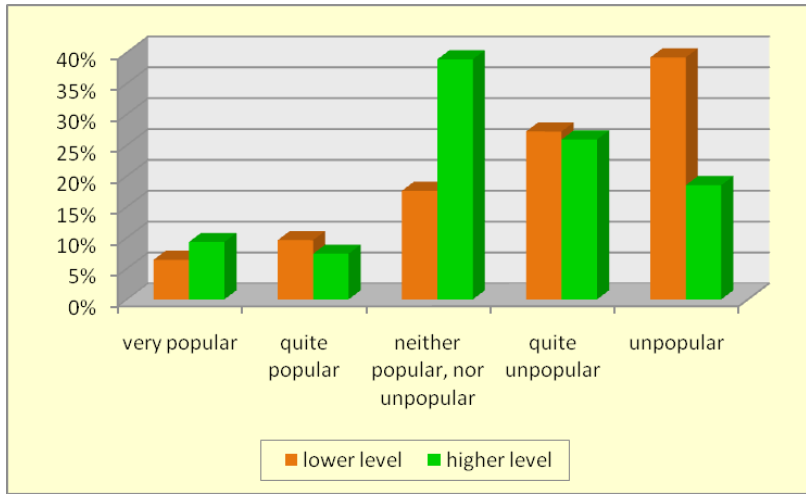

Fig. 6: Differences in the rating of blues in respondents with lower and higher openness level

The significance of the calculated Chi-square, with value lower than 0.05, indictes the existence of a statistically significant relation between the variable *blues* and the variable *openness level* (see Tab. 2). The association between the two variables is low to medium.

Tab. 2: Values of Chi-square and Cramer's V coefficient (blues and openness level)

variable 1	variable 2	coefficient	value	significance
blues	openness level	Chi-square	12.658	0.013
		Cramer's V	0.266	0.013

For testing the null hypothesis in terms of ascertaining no statistically significant relation between the groups of respondents with lower and higher openness level, on the basis of the Kolmogorov-Smirnov test result the significance value of which confirms normality of distribution if it exceeds 0.05, the parametric t-test was selected. The significance value of below 0.05 for the t-test facilitates rejection of the null hypothesis about the non-existence of difference between the variables *blues* and *openness*

level. There are statistically significant differences in the rating of blues in respondents with higher and lower openness levels (see Tab. 3 and Tab. 4).

Tab. 3: Kolmogorov-Smirnov normality test (blues and openness level)

variable 1	variable 2	Kolmogorov-Smirnov test	Significance
Blues	openness level	1.348	0.053

Tab. 4: T-test (blues and openness level)

variable 1	variable 2	t-test	significance value (2-tailed)
Blues	openness level	2.348	0.020

Rating of folk music with respect to openness level

Statistically significant differences were found in the rating of folk music between respondents with lower and higher opennes levels. 77.6% of adolescents, aged 15 to 18 years and with lower openness level, gave folk music a negative rating in contrast to 67.2% from a group with higher openness level (see Tab. 5, Fig. 7).

Tab. 5: Differences in the rating of folk music in respondents with lower and higher openness levels

	lower openness level		**higher openness level**	
	number	**percentage**	**number**	**percentage**
very popular	10	7.5%	5	8.2%
quite popular	7	5.2%	5	8.2%
neither popular, nor unpopular	13	9.7%	10	16.4%
quite unpopular	16	11.9%	16	26.2%
unpopular	88	65.7%	25	41.0%
Total	**134**	**100%**	**81**	**100%**

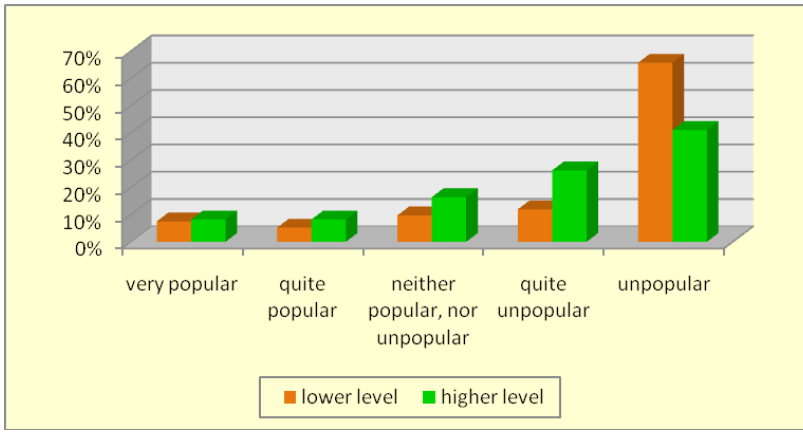

Fig. 7: Differences in the rating of folk music in respondents with lower and higher openness levels

Based on the output from the Chi-square test, the significance of which is lower than 0.05, we can specify the relation between *openness level* and the variable *folk music* as statistically significant. The correlation between both variables is low to medium (see Tab. 6).

Tab. 6: Values of Chi-square and Cramer's V coefficient (folk music and openness level)

variable 1	variable 2	coefficient	value	significance
Folk	opennes level	Chi-square	11.847	0.019
		Cramer's V	0.246	0.019

For testing the null hypothesis in terms of ascertaining no statistically significant relation between the groups of respondents with lower and higher openness levels, on the basis of the Kolmogorov-Smirnov test result the significance value of which does not confirms normality of distribution if it is below 0.05, the non-parametric Mann-Whitney test was selected. The significance value of below 0.05 for the Mann-Whitheny test facilitates rejection of the null hypothesis about the non-existence of a difference between the variables *folk music* and *openness level*. There are statistically significant differences in the rating of folk music in respondents with higher and lower openness levels (see Tab. 7 and Tab. 8).

Tab. 7: Kolmogorov-Smirnov normality test (folk music and openness level)

variable 1	variable 2	Kolmogorov-Smirnov test	significance
Folk	openness level	1.598	0.012

Tab. 8: Mann-Whitney test (folk music and openness level)

variable 1	variable 2	Mann-Whitney test	significance value (2-tailed)
Folk	openness level	3.186	0.006

Rating of jazz with respect to openness level

Jazz acquired positive rating from 18.1% of the respondents with lower openness level and 37.3% of respondents with higher openness level. And on the contrary, 61.8% of the participants with lower openness level and 31.3% of adolescents with higher openness level rated jazz as netagive (see Tab. 9, Fig. 8).

Tab. 9: Differences in the rating of jazz in respondents with lower and higher openness levels

	lower openness level		**higher openness level**	
	number	**percentage**	**number**	**percentage**
very popular	4	2.7%	6	13.4%
quite popular	23	15.4%	16	23.9%
neither popular, nor unpopular	30	20.1%	21	31.3%
quite unpopular	39	26.2%	12	17.9%
unpopular	53	35.6%	9	13.4%
Total	**149**	**100%**	**67**	**100%**

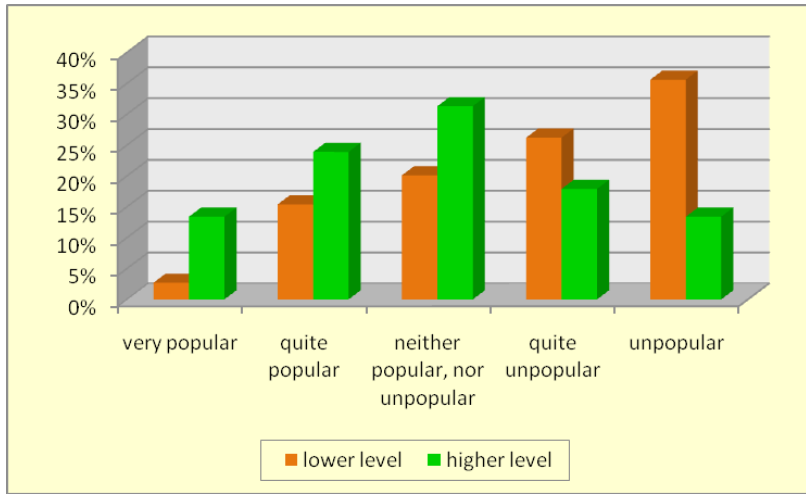

Fig. 8: Differences in the rating of jazz in respondents with lower and higher openness levels

Based on the output from the Chi-square test, the significance of which is lower than 0.05, we can specify the relation between *openness level* and the variable *jazz* as statistically significant. The correlation between both variables is medium to significant (see Tab. 10).

Tab. 10: Values of Chi-square and Cramer's V coefficient (jazz and openness level)

variable 1	variable 2	coefficient	value	significance
Jazz	openness level	Chi-square	22.334	0.000
		Cramer's V	0.322	0.000

For testing the null hypothesis in terms of ascertaining no statistically significant relation between the groups of respondents with lower and higher openness levels, on the basis of the Kolmogorov-Smirnov test result the significance value of which does not confirms normality of distribution if it is below 0.05, the non-parametric Mann-Whitney test was selected. The significance value of below 0.05 for the Mann-Whitney test facilitates rejection of the null hypothesis about the non-existence of a difference between the variables *jazz* and *openness level*. There are statistically significant differences in the rating of jazz in respondents with higher and lower openness levels (see Tab. 11 and Tab. 12).

Tab. 11: Kolmogorov-Smirnov normality test (jazz and openness level)

variable 1	variable 2	Kolmogorov-Smirnov	significance
Jazz	openness level	2.067	0.000

Tab. 12: Mann-Whitney test (jazz and openness level)

variable 1	variable 2	Mann-Whitney test	significance value (2-tailed)
Jazz	openness level	3.168	0.000

Rating of classical music with respect to openness level

17.8% of adolescents with lower openness level and 26.8 adolescents with higher openness level stated positive rating for classical music. A negative attitude to classical music, on the other hand, appeared more frequently in the group with lower level (64.3%) than in the group with higher level (37.3%) of openness (see Tab. 13 and Fig. 9).

Tab. 13: Differences in the rating of classical music in respondents with lower and higher openness levels

	lower openness level		**higher openness level**	
	number	**percentage**	**number**	**percentage**
very popular	12	7.9%	8	11.9%
quite popular	15	9.9%	10	14.9%
neither popular, nor unpopular	27	17.9%	24	35.8%
quite unpopular	41	27.2%	15	22.4%
unpopular	56	37.1%	10	14.9%
Total	**151**	**100%**	**67**	**100%**

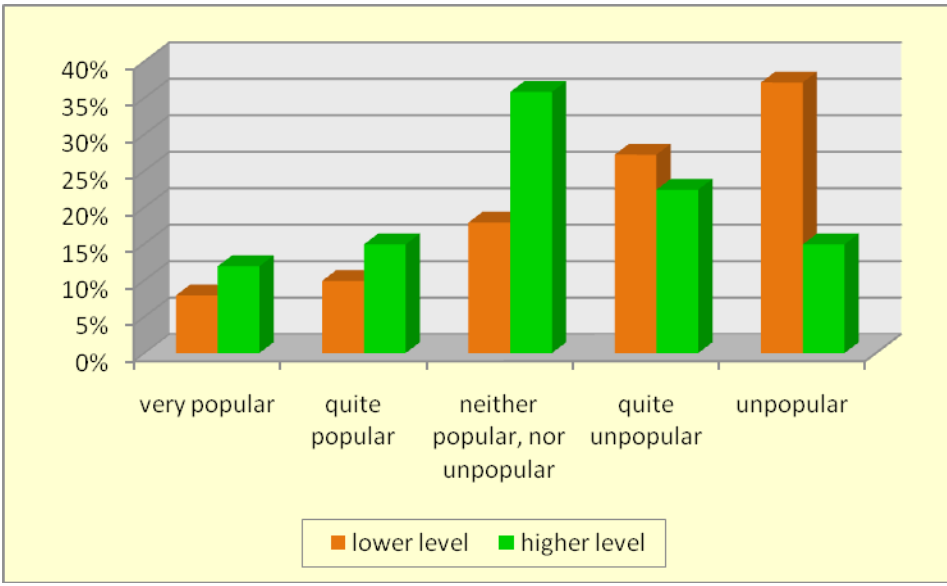

Fig. 9: Differences in the rating of classical music in respondents with lower and higher openness levels

The Chi-square test results confirmed that there is a statistically significant relation between the variable *classicle music* and the variable *openness level*. The Cramer's V coefficient value demonstrates low to medium association (see Tab. 14).

Tab. 14: Values of Chi-square and Cramer's V coefficient (classical music and openness level)

variable 1	variable 2	coefficient	value	significance
classical music	openness level	Chi-square	16.138	0.003
		Cramer's V	0.272	0.003

Due to the low significance of the normality test, ruling out normality of data distribution, the non-parametric Mann-Whitney test was used as a tool for comparison. Based on the resulting significance value of the non-parametric test we can state statistically significant differences between

respondents with lower and higher openness levels when rating classical music, which can be expected even in the basic set (see Tab. 15 and Tab. 16).

Tab. 15: Kolmogorov-Smirnov normality test (classical music and openness level)

variable 1	variable 2	Kolmogorov-Smirnov	significance
classical	openness level	1.834	0.002

Tab. 16: Mann-Whitney test (classical music and openness level)

variable 1	variable 2	Mann-Whitney test	significance value (2-tailed)
classical music	openness level	3552.500	0.000

Rating of punk music with respect to openness level

Punk is rated in a more positive manner by respondents with higher openness level (47.1%) than by participants with lower openness level (30.5%). The frequency of answers is recorded in Tab. 17 and plotted in a chart as Fig. 10.

Tab. 17: Differences in the rating of punk music in respondents with lower and higher openness levels

	lower openness level		**higher openness level**	
	number	**percentage**	**number**	**percentage**
very popular	24	15.9%	15	22.1%
quite popular	22	14.6%	17	25.0%
neither popular, nor unpopular	35	23.2%	13	19.1%
quite unpopular	33	21.9%	18	26.5%
unpopular	37	24.5%	5	7.4%
Total	**151**	**100 %**	**88**	**100%**

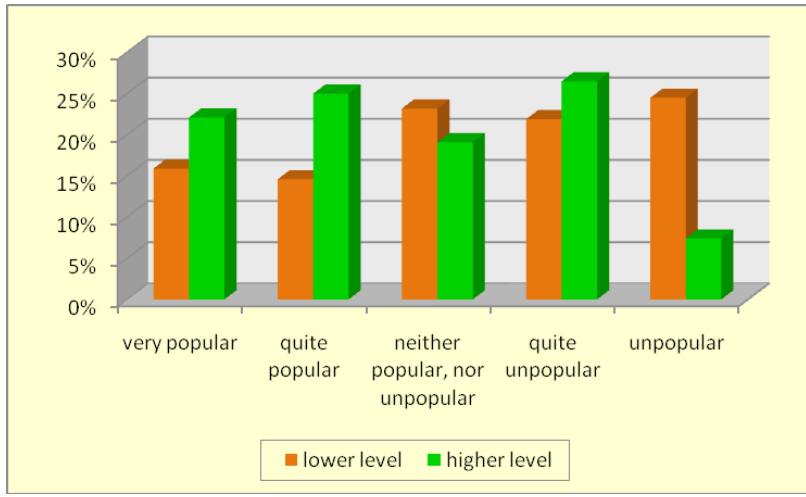

Fig. 10: Differences in the rating of punk music in respondents with lower and higher openness levels

The association between the variables *punk* and *openness level* of respondents was verified through the Chi-square and Cramer's V coefficient. Chi-square significance value was higher than 0.05, indicating a statistically significant relation between the variables. The value of Cramer's V demonstrates low to medium correlation (see Tab. 18).

Tab. 18: Values of Chi-square and Cramer's V coefficient (punk and openness level)

variable 1	variable 2	coefficient	value	significance
Punk	openness level	Chi-square	11.838	0.019
		Cramer's V	0.232	0.019

The Chi-square output was verified through the t-test by which the null hypothesis about non-existence of a statistically significant difference between both variables was tested. This method was chosen based on the Kolmogorov-Smirnov normality test results, the significance value of which exceeded 0.05, thus demonstrating normal distribution of the examined data (see Tab. 19).

The T-test result confirmed our previous calculations. The calculated t-test significance with value exceeding 0.05 confirms the existence of statistically significant differences in the rating of punk music between respondents with lower and higher opennes levels (see Tab. 20).

Tab. 19: Kolmogorov-Smirnov normality test (punk and openness level)

variable 1	variable 2	Kolmogorov-Smirnov	significance
Punk	openness level	1.174	0.172

Tab. 20: T-test (punk and openness level)

variable 1	variable 2	T-test	significance value (2-tailed)
Punk	openness level	2.271	0.007

Rating of rock with respect to openness level

75.4% of respondents with higher openness level specified rock as very popular. The same view-point was given by 44.1% adolescents with lower openness level (see Tab. 21and chart Fig. 11).

Tab. 21: Differences in the rating of rock in respondents with lower and higher openness levels

	lower openness level		**higher openness level**	
	number	**percentage**	**number**	**percentage**
very popular	67	44.1%	52	75.4%
quite popular	36	23.7%	5	7.2%
neither popular, nor unpopular	26	17.1%	4	5.8%
quite unpopular	12	7.9%	4	5.8%
unpopular	11	7.2%	4	5.8 %
Total	**152**	**100%**	**69**	**100%**

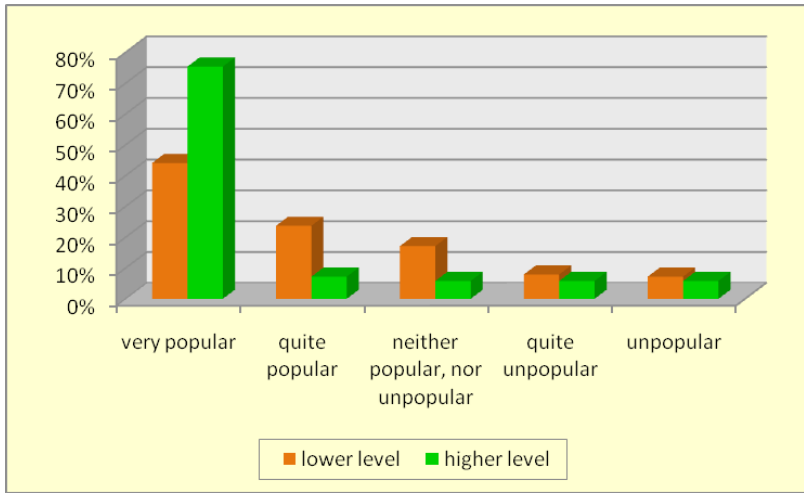

Fig. 11: Differences in the rating of rock in respondents with lower and higher openness levels

The significance of the calculated Chi-square with value below 0.05 demonstrates the existence of statistically significant relation between *openness level* and the variable *rock*. The resulting value of Cramer's V coefficient can be interpreted as medium to significant correlation between both variables (see Tab. 22).

Tab. 22: Values of Chi-square and Cramer's V coefficient (rock and openness level)

variable 1	variable 2	coefficient	value	significance
Rock	openness level	Chi-square	20.441	0.000
		Cramer's V	0.304	0.000

The non-parametric Mann-Whitney test was used as tool for comparison in the rating of rock (variable *rock*) between groups with higher and lower openness levels, as the calculated significance of the Kolmogorov-Smirnov test with value below 0.05 (see Tab. 23) did not allow for following the hypothesis on normal data distribution. The non-parametric test

significance result was lower than 0.05. The difference between respondents with lower and higher openness levels can thus be identified as statistically significant (see Tab. 24).

Tab. 23: Kolmogorov-Smirnov normality test (rock and openness level)

variable 1	variable 2	Kolmogorov-Smirnov	significance
Rock	openness level	2.155	0.000

Tab. 24: Mann-Whitney test (rock and openness level)

variable 1	variable 2	Mann-Whitney test	significance value (2-tailed)
Rock	openness level	3.757	0.000

Rating of musical styles and genres with respect to other personality factors, except for openness

In data analysis between the four remaining personality factors – neuroticism, extraversion, agreeableness and conscientiousness – a significant result only came out in two couples of variables. Statistically significant relation was found between the variables *pop* and *conscientiousness level*, and also between *extraversion level* and the variable *reggae*.

Rating of pop with respect to conscientiousness level

67.6% of respondents with higher conscientiousness level and 47.9% of adolescents with lower conscientiousness level considered pop to be very or quite popular. The frequency of answers is stated in Tab. 25 and plotted in Fig. 12.

T*ab. 25: Differences in the rating of pop in respondents with lower or higher conscientiousness levels*

	lower level		higher level	
	number	percentage	number	percentage
very popular	32	26.9%	36	34.3%
quite popular	25	21.0%	35	33.3%
neither popular, nor unpopular	27	22.7%	19	18.1%
quite unpopular	19	16.0%	9	8.6%
unpopular	16	13.4%	6	5.7%
Total	**119**	**100%**	**105**	**100%**

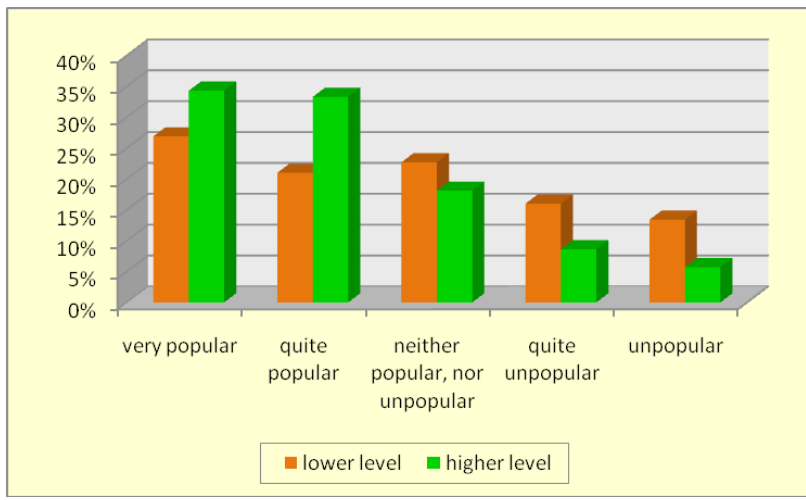

Fig. 12: Differences in the rating of pop in respondents with lower and higher conscientiousness levels

An association between the variable *pop* and *conscientiousness level* was verified by means of Chi-square and Cramer's V coefficient. The significance value of Chi-square was higher than 0.05, evidencing a statistically significant relation between the variables. The value of Cramer's V demonstrates low to medium correlation (see Tab. 26).

Tab. 26: Values of Chi-square and Cramer's V coefficient (pop and conscientiousness level)

variable 1	variable 2	coefficient	value	significance
Pop	conscientiousness level	Chi-square	10.576	0.032
		Cramer's V	0.217	0.032

Based on the above stipulated results, the hypothesis on non-existence of statistically significant difference between the variable *conscientiousness level* and the variable *pop* was tested by means of the non-parametric Mann-Whitney test due to low significance of the Kolmogorov-Smirnov test which did not confirm normal data distribution (see Tab. 27). The result of the performed Mann-Whitney test, the significance of which was lower than 0.05, was confirmed by the existence of statistically significant differences between respondents with lower and higher conscientiousness levels in the rating of pop (see Tab. 28).

Tab. 27: Kolmogorov-Smirnov normality test (pop and conscientiousness level)

variable 1	variable 2	Kolmogorov-Smirnov	significance
Pop	conscientiousness level	1.473	0.026

Tab. 28: Mann-Whitney test (pop and conscientiousness level)

variable 1	variable 2	Mann-Whitney test	significance value (2-tailed)
Pop	conscientiousness level	-2.898	0.007

Rating of reggae with respect to extraversion level

28.3 % adolescents with lower extraversion level and 47.8% of respondents with higher extraversion level specified reggae as a very popular or quite popular music style (see Tab. 29, Fig. 13).

Tab. 29: Differences in the rating of reggae in respondents with lower and higher extraversion levels

	lower extraversion level		higher extraversion level	
	number	percentage	number	percentage
very popular	9	9.9%	23	20.4%
quite popular	17	18.7%	31	27.4%
neither popular, nor unpopular	24	26.4%	27	23.9%
quite unpopular	18	19.8%	17	15.0%
unpopular	23	25.3%	15	13.3%
Total	**91**	**100%**	**112**	**100%**

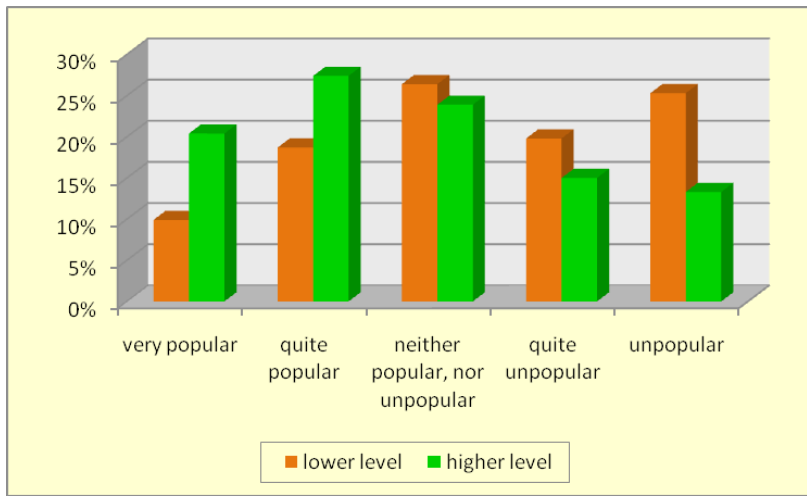

Fig. 13: Differences in the rating of reggae in respondents with lower and higher extraversion levels

The Chi-square test and Cramer's V coefficient were used to ascertain associative relation between the variable *reggae* and *extraversion level*. The Chi-square significance level below 0.05 confirms the existence of a significant relation between both variables (see Tab. 30). Based on the calculated value of Cramer's V coefficient, the correlation can be interpreted as low to medium.

Tab. 30: Values of Chi-square and Cramer's V coefficient (reggae and extraversion level)

variable 1	variable 2	coefficient	value	significance
Reggae	extraversion level	Chi-square	11.132	0.025
		Cramer's V	0.1987	0.025

The Chi-square output was verified by means of the Mann-Whithey test through which the null hypothesis on the non-existence of a statistically significant difference between both variables was tested. This method was selected based on the results of the Kolmogorov-Smirnov normality test, the significance of which was below 0.05, and thus did not evidence normal distribution of the examined data (see Tab. 31).

The calculated t-test significance, with value above 0.05, confirms the existence of statistically significant differences between the respondents with lower and higher extraversion levels in the rating of reggae (see Tab. 32).

Tab. 31: Kolmogorov-Smirnov normality test (reggae and extraversion level)

variable 1	variable 2	Kolmogorov-Smirnov	significance
Reggae	extraversion level	1.364	0.048

Tab. 32: Mann-Whitney test (reggae and extraversion level)

variable 1	variable 2	Mann-Whitney test	significance value (2-tailed)
Reggae	extraversion level	3.868	0.002

Confirmation of hypothesis no. 1

The variable openness level correlated with six vriables of music styles and genres (see Fig. 14 and Fig. 15).

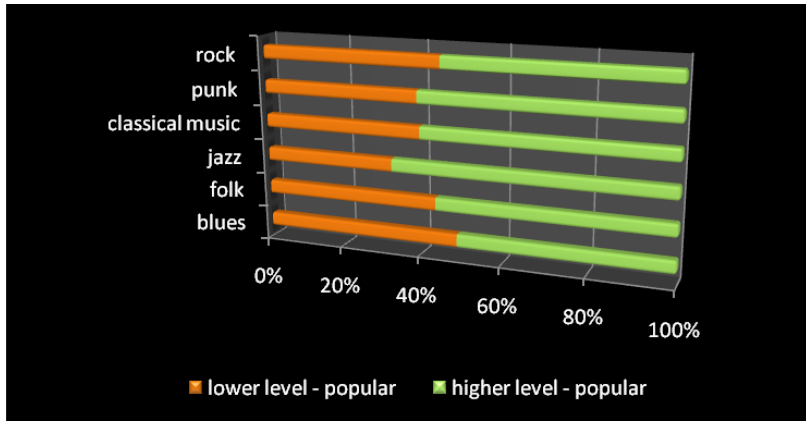

Fig. 14: The difference in the rating of music styles and genres in respondents with lower and higher openness levels (sum total of answers "very popular" and "quite popular")

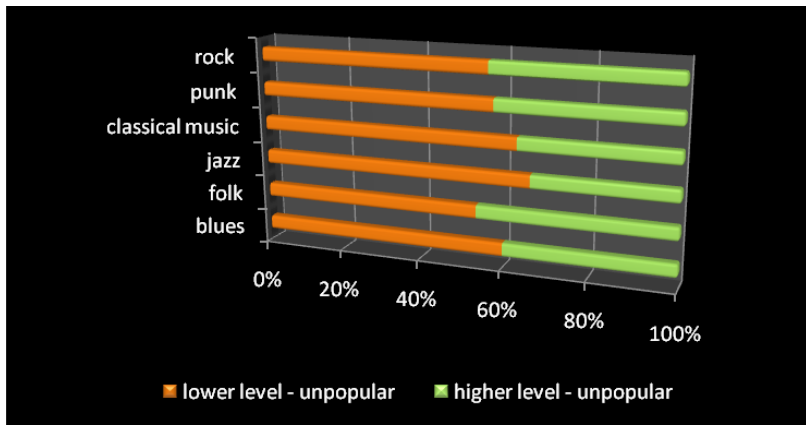

Fig. 15: The difference in the rating of music styles and genres in respondents with lower and higher openness levels (sum total of answers "quite unpopular" and "unpopular")

In the 4 remaining personality dimensions, statistically significant relation with the variables of music styles and genres was only confirmed once in the case of extraversion and once in the case of conscientiousness.

Based on the stated results, hypothesis no. 1, stating that musical styles and genres (as rated by adolescents) correlate with openness level more frequently than with other personality factors, can be confirmed.

DISCUSSION

The research results have evidenced a relation between personality dimensions and music preferences. Adolescents with higher and lower levels of openness have shown differences in the rating of a total of six music styles and genres, which included blues, folk music, jazz, classical music, punk and rock. All of these were perceived in a more positive manner by respondents with higher openness level than by research participants with lower openness level. In all of the examined personality dimensions, openness to experience was ascertained as the most associated with music preferences of adolescents. The hypothesis no. 1 was thereby confirmed.

Relations between music preferences and personality dimensions that we ascertained in the examined sample were verified by previous studies. According to the research, adolescents with higher openness level may be inclined to more sophisticated, unconventional, rebellious and unusual music. Some sources (Miranda, Claes, 2008; Delsing et al., 2008) state that openness predicts higher preferences for alternative, heavy-metal and classical music; other studies (Rentfrow, Gosling, 2003) expand the number of music styles and genres impacted by openness even to include rock, blues, jazz and folk music.

In the sample examined by us, adolescents with higher conscientiousness level preferred pop more frequently than adolescents with lower conscientiousness level. A positive correlation between pop and conscientiousness level was also confirmed by the Rentfrow and Gosling (2003) study.

Statistically significant relation was found between extraversion level and reggae. Adolescents with higher extraversion level showed higher preference for reggae when compared to adolescents with lower extraversion level. Rentfrow and Gosling (2003) in their research confirmed the association between extraversion and music with enhanced bass, such as rap or dance music. According to the results of the Delsing et al. (2008) study, extraversion during adolescence is related to urban or "street" music (e.g. hip hop, R'n'B). According to the authors, one of the possible reasons may be frequent connection of this type of music with social gatherings

in the form of various parties. Both of the above stated explanations can also be applied to the correlation we found between extraversion level nad reggae.

In contrast to the studies, indicating the relation between neuroticism and musical preferences (Rentfrow, Gosling, 2003; Miranda, Claes, 2008; Delsing et al., 2008), our study did not confirm statistically significant relation between neuroticism and any variable relating to music styles and genres. Even testing the correlations between variables, pertaining to music styles and genres and agreeableness level, brought a similar result.

The research, carried out as part of the dissertation, is amongst the first researches performed in the Czech Republic focused on examining the impact of personality factors on the music preferences of adolescents. To verify and expand the acquired results, further research activities in this field will be required.

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Typology of Music Preference in Czech Adolescents

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Abstract
This study deals with the music preferences of adolescents in the context of various aspects of their lives. It pursues the relation between music preferences and social attributes of adolescents, their way of spending leisure time, their preference for fashion, media utilisation, and system of values; further on, self-appreciation and their attitude towards other phenomena of today. The results indicate that music preferences and the motivating factor influencing their choice of music is internally differentiated, and this heterogeneity is significantly related to unequal social, cultural and psychological qualities of the individuals. The concluding part of the study summarizes the results of empirical findings while respecting the outcomes of previous studies.

Key words
adolescence, music, musical preference, sociology, psychology

Introduction

Since the 1960s, researches from various social sciences have been showing the markedly significant role played by music in the life of an adolescent. There are repeated confirmations of some adolescents' specifics in the way and frequency of listening to music, in their motivation to be the listener of music, the special role of music in the adolescent developmental phase and in the course of shaping their identity, as well as in terms of the diverse relation to the popularity of certain genres and specific forms of behaviour. Zilmann and Gan (1997) state that an average American adolescent spends over four hours per day listening to music, puts music as number one in his/her list of interests, and mostly prefers listening to music alone.

Why is music so closely associated with development in adolescents? Forming an adolescent identity typically includes a gradual release from the influence of parents and establishing peer groups. Peers, who are perceived as attractive or worthy of a dominant position, are also role models for other members of the group when it comes to their own music preferences. Finding a common taste in music intensifies an adolescent's feeling of belonging to a group, and at the same time helps him/her distinguish from peers of other groups, thereby reassuring him/herself of his/her own exclusivity. Expressing music preferences and thereby associated manifestations (hairstyle, way of dressing, etc.) then work as a trademark, which clearly defines such an individual, and upon cementing a consensus on the taste in music leads to establishing other relations (such as partners, etc.). Expressing music preference in the stated manner can also be perceived as a form of communication, which also encodes other information about the individual (op. cit.). All this applies not only to music but also to other components of a popular culture.

However, music preferences are not only the consequence of social influence but also of the individual dispositions and developmental issues, such as personality traits. We can also find a close relation between personality structure and preference for certain musical genres, as confirmed by some recent studies (Renfrown and Gosling, 2003, in the Czech Republic Franěk and Mužík, 2006). An adolescent's identity, which is also formed by an internal and inherent defiance towards authorities, is often reflected and strengthened through a certain type of music. Adolescents that harbour strong defiance towards authorities (e.g. parents) more frequently listen to genres symbolising such values (e.g. heavy metal or hip hop), while those not having issues with the authorities tend to prefer other styles or do not perceive the rebellious elements of the mentioned genres as significant. Attitude to music is also influenced by transient mental conditions. Teenagers going through unhappy love, feeling of loneliness or misunderstanding, etc., find emotional support, understanding and solidarity in songs expressing such emotions (Zilmann and Gan, 1997). Furthermore, adolescents also display a specific motivation for listening to music. They most frequently state that music helps them unwind from stress, fill the silence, dispel boredom, suppress feelings of loneliness and helps them evoke the desired emotions or intensify the feeling of their own attractiveness, etc. (op. cit.).

It is clear that this is a rather extensive subject. In the Czech environment, these issues are completely dormant as far as academic interest is concerned, at least for now, and if it is exceptionally not the case, then the monitored audience is only a partial segment of comprehensive surveys (e.g. Bek, 2003, Franěk, 2005 etc.).

The presented study, drawing from the results of a more extensive research (Mužík, 2010), represents an exploratory probe into the life of Czech adolescents in the context of their music preferences. Given the rather extensive statistical protocol, comments and graphic appendices in the original analysis, this study concentrates on the key focus of the dissertation, which is the typology of music preference in adolescents in the context of everyday life[1].

Method and Sample

The sample of adolescents consisted of 1,315 respondents from the Czech Republic. Their average age was 17.45 years with standard deviation of 1.6 years (age range was from 14 to 20 years). According to the gender criteria, women represented 48.9% of the sample, the rest were men. 70.2% of respondents had completed their primary education at the time of research, 10.6% had completed their secondary education without the school-leaving exam, 11.6% had secondary education with the school-leaving exam and 6.9% had not yet completed their primary education. In terms of the size of settlement at their place of residence, 14.8% of respondents were from municipalities with less than 1,000 residents, 22% from municipalities with one thousand to five thousand residents, 20.3% from municipalities with 5000–19,999 residents, 22% from municipalities with 20,000–99,999 residents and the remaining 20.8% lived in cities with population over 100,000 residents. The sample was considered according to cohorts of gender, age, education, region and the size of the settlement at the place of residence, and it constitutes a representative selection of adolescents from the Czech Republic. The entire population to which the adolescents were compared constituted a representative sample of 15,201 residents of the Czech Republic of 15 to 79 years of age, considered according to the above stated criteria. The analysis is based on data from the Market Media

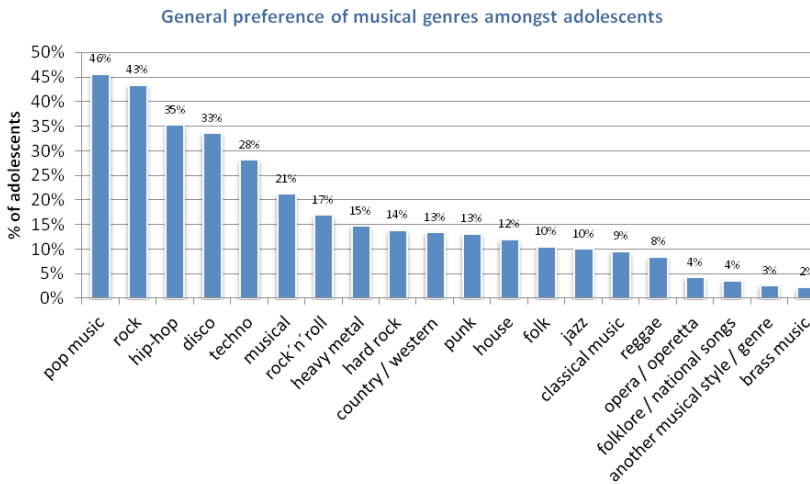
[1] Detailed results are available for free download at http://theses.cz/id/ghh4qd/Dis_prace_Muzik.pdf.

Lifestyle – Target Group Index (period Q1–Q4 2008), conducted by the Czech agency Medián a.s.

Results

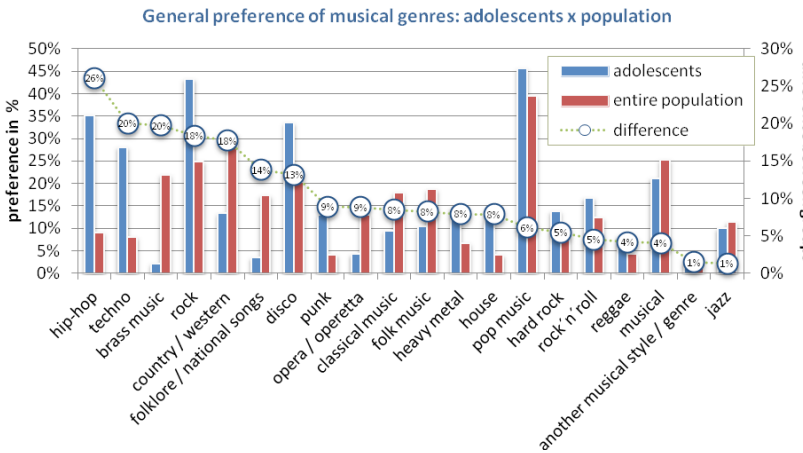
General preferences of music genres

Czech adolescents most frequently prefer pop and rock music (+40%), followed by hip-hop and disco (+30%); on the other hand, opera/operetta, folklore and national songs, brass music and unspecified genres reach less than 5% popularity. These results are in consensus with the findings of Bek (2003), who found similarly high popularity level of rock, pop, contemporary dance music, 1980s disco music and musicals in the population of up to 24 years of age; and on the other hand, also their adversity towards brass music, contemporary jazz and (contemporary) classical music. Parallels between these results and the results of a pilot research (Mužík, 2007) are less frequent than in Bek's, however there are no explicitly contradictory tendencies[2].



[2] The differences can be explained by the diversity of the sample, which was smaller in the pilot study (Mužík, 2007) and was not based on strictly random selection, and apart from that the objective was rather to understand the inside relations between music preferences and other phenomena.

According to the afore mentioned findings and theories, adolescents exhibit sense when selecting the genres that reach different values in the population mean, whether positive or negative. In this regard, adolescents exhibit significantly stronger preference for hip-hop, techno, rock, punk and disco, while the entire population, when compared with adolescents, is more inclined to brass music, folklore and national songs, classical music, opera and operetta and folk music[3]. It is also in this respect that the findings by Bek (op. cit.) were completed, even for contemporary dance music, operetta, folk music, country and western, heavy metal and brass music. In his research, Bek did not follow the genre of hip-hop where such comparison would be extremely desirable. With certain generalization, these results can also be put in context with Britain, where the situation was described by Hargreaves and North (1997).



Typology of music preference

It was essential for the pivotal parts of the analysis, with respect for well-arranged results, the possibility of deducing multidimensional analyses and final plastic capturing of reality, to reduce the large number of musical genres to superior genre units and then classify the respondents based on their attitude to such genres.

[3] Significance level $\chi 2$ of tests <0.001.

In order to define superior genre groups, exploratory factor analysis[4] was used, the results of which are stated below. The stipulated model[5] consists of six relatively homogeneous factors named according to generalization of genres, the correlation of which was strongest with individual factors. The factor "Country & Western" (16%) included both genres mentioned in the name. The factor "Electronic music and hip-hop" (12%) encompassed house, techno and hip-hop. The group "Hard & Heavy" was significantly saturated with heavy metal, hard rock and partially also rock. The factor "Art music" encompassed classical music, jazz and musical, while the group "Mainstream" consisted of pop, disco, rock and musicals. The last, and the least abundant considered factor was "Punk & Reggae", which was mainly saturated with genres such as reggae and punk, although we can also find higher saturation with rock'n'roll, rock and other genres.

Table: Music preferences of adolescents (factor analysis results)

genre/factor	Country & Folk	Electronic music and hip-hop	Hard & heavy	Art music	Mainstream	Punk & Reggae
country / western	**0,804**	-0,086	0,001	0,059	0,051	0,075
folk music	**0,789**	-0,013	-0,081	0,093	0,031	0,011
house	0,014	**0,756**	-0,033	-0,057	-0,022	0,207
techno	0,068	**0,702**	0,296	-0,073	0,011	-0,070
hip-hop	-0,222	**0,595**	-0,080	-0,014	0,107	-0,023
heavy metal	0,022	0,009	**0,820**	-0,023	-0,033	-0,069
hard rock	-0,087	0,114	**0,689**	-0,010	-0,064	0,275
jazz	-0,014	-0,022	0,038	**0,778**	-0,045	0,211
classical music	0,242	-0,028	-0,122	**0,659**	-0,146	-0,068
musical	0,027	-0,124	0,034	**0,598**	**0,410**	-0,036
disco	0,147	0,134	0,014	0,070	**0,645**	-0,073
pop music	-0,014	0,028	-0,278	-0,067	**0,639**	0,009
rock	-0,115	-0,116	**0,345**	-0,069	**0,567**	0,342
reggae	0,000	0,017	-0,060	0,050	-0,189	**0,793**
punk	0,060	0,172	0,164	-0,003	0,234	**0,586**
rock´n´roll	0,328	-0,094	0,164	0,224	0,078	**0,407**
actual figure	*2,0978*	*1,9990*	*1,4254*	*1,2833*	*1,1332*	*1,0263*
% of variance	*13%*	*12%*	*9%*	*8%*	*7%*	*6%*

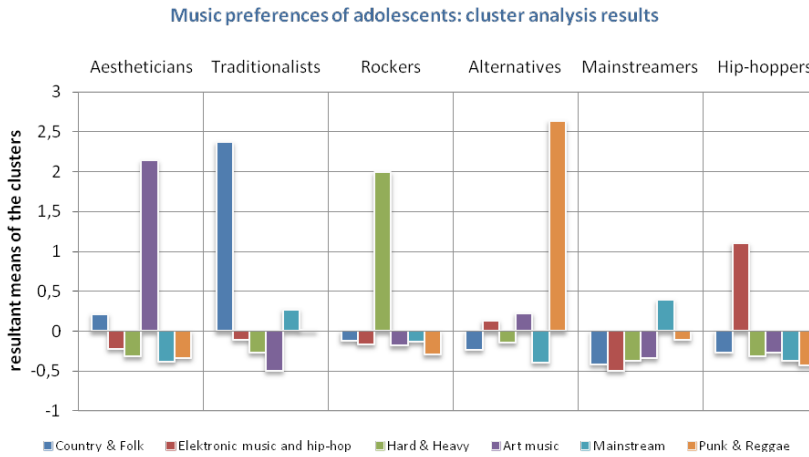
[4] Normalized rotation Varimax was used to adjust the factors, and Kaiser's criterion was used as the criterion for the final number of factors, considered in the model. The model describes 56% of total variance.

[5] Four genres with the lowest preference in adolescents were excluded from the model (operetta, folklore/national songs, brass music and another genre) with respect for acquiring a reasonable number of factors/types.

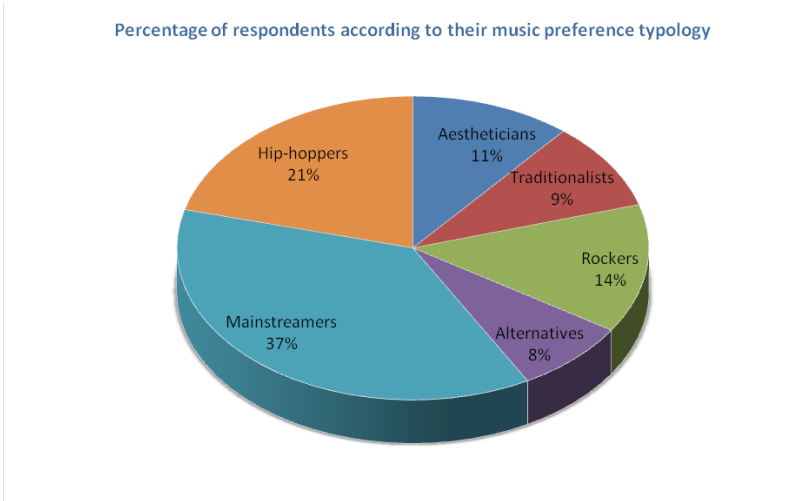
In this case, to render a comparison of similar results from other research works is complicated by several phenomena. Firstly, it is the impact of sample composition on the overall preference structure, e.g. from the age perspective. This pertains e.g. to factor schemes in Bek's work (2003), who monitored the entire population, but also in the works of Rentfrow and Gossling (2003) or most recently Franěk and Mužík (2008) where the schemes worked with similar age cohorts for this research and reached a smaller number of factors.

Once the music genres portfolio was reduced to superior groups (factors), new variables with respect for respondent's music preference tendencies had to be created, i.e. each respondent had to be assigned with some of the limited number of music types. In order to obtain such categorical variables, the method of k-means clustering was used and the number of total clusters was manipulated in order to achieve sensible preferential categories. Such structure was achieved at the level of six clusters (see chart below).

Here, just like in the case of factor analysis for music genre preferences, we resorted to renaming indifferent names of clusters with names of individual respondent groups, according to their classification to clusters. Clusters were named according to the key factors, which saturated individual clusters the most (or more precisely formed basal nodes of clusters). The group of respondents, preferring the genre group "country & folk", was included in the "Traditionalists" category. The group preferring "electronic music and hip-hop" was transformed to "Hip-hoppers" group. The group professing art music (classical music, jazz, etc.) was called "Aestheticians" and the group "Rockers" was closest to the genres of the so-called hard music, i.e. metal and hard rock. The group "Mainstreamers" was associated with preferences for mainstream music, i.e. pop, rock, musicals, disco, etc. The last group, "Alternatives", mainly encompassed a broader group of preferences around punk and reggae, but also other genres.



For the purpose of the following contemplations, it would be useful to learn about the overall percentage distribution of individual groups in the adolescent population. The largest group are the Mainstreamers (37%), which is, in keeping with the general prerequisite that the so-called mainstream is associated with preferences on average, i.e. the largest segment of the population. The second strongest group were the Hip-hoppers, i.e. fans of hip-hop and techno music, followed by the Rockers with 14% share of the population. The Aestheticians take up 11% of the total, closely followed by the Traditionalists with 9% share. The weakest group, just like in the factor models, from which the given musical preference typology actually results, are the Alternatives, i.e. fans of punk, reggae and other non-mainstream genres.



In terms of the number of preferred genres, individual groups display mutual and statistically significant differences[6]. In four groups, preferences focus on four genres on average, in the segment of Mainstreamers and Hip-hoppers only on two. The highest variance as to the number of preferential objectives within one group is represented by the Alternatives, where 25% listen to 8 or more music genres. On the other hand, the Mainstreamers appear to be relatively united when it comes to the number of preferred genres.

Number of preferred genres according to musically preferential typology

Type	10%	Q1	Median	Q3	90%
Aestheticians	1	3	4	5	8
Traditionalists	1	3	4	6	8
Rockers	1	3	4	5	9
Alternatives	2	3	4	8	11
Mainstreamers	1	2	2	3	5
Hip-hoppers	1	1	2	4	6

[6] Significance level in Welch's test below 0.01.

It would be appropriate to test the presented musically-preferential typology in order to find out how much distortion was achieved by the serial use of two multi-dimensional methods (which usually carry certain part of the unexplained data). The table below displays affinity[7] of preference for specific genres in individual segments towards the population mean. In the majority of groups, the number of above average affinity preferences for individual genres is higher than shown by factor analysis. Nevertheless, we can see that the pertinence of specific genres to parental musically preferential categories was retained. Besides, it is clear from the table[8] that there is a variable level of affinity in various groups, sometimes it is more average when compared with the total, sometimes it is extreme (e.g. reggae for Alternatives).

Table: Percentage of affinity preference for individual genre at the level of musically-preferential typology

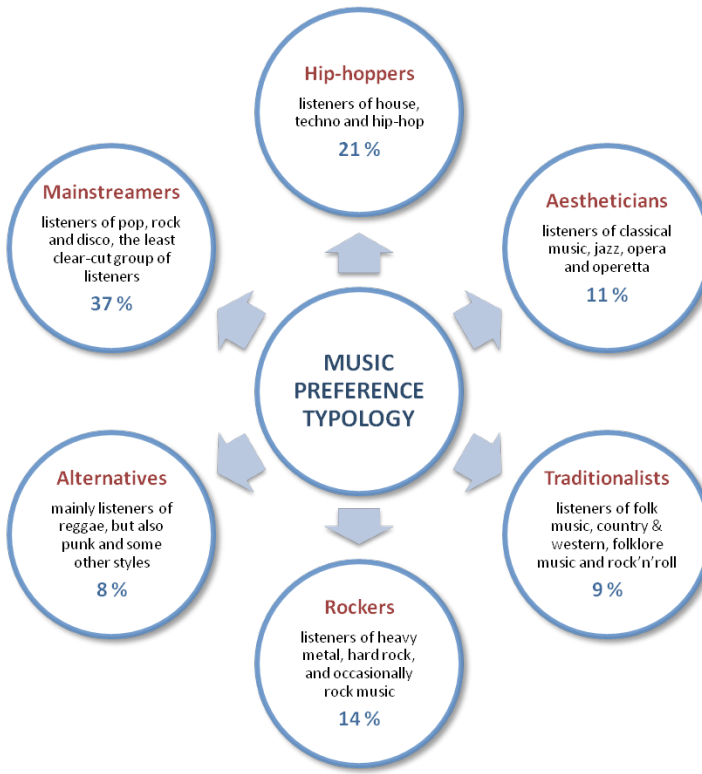
genre/group	Aestheticians	Traditionalists	Rockers	Alternatives	Main-streamers	Hip-hoppers
country / western	53%	491%	-35%	-2%	-88%	-86%
brass music	207%	75%	16%	-78%	-20%	-94%
disco	-10%	33%	-32%	-15%	26%	-23%
folk music	99%	575%	-70%	-50%	100%	-89%
hard rock	-76%	-90%	323%	147%	-79%	-62%
heavy metal	-73%	-42%	444%	-7%	100%	-75%
hip-hop	-52%	-61%	-19%	-20%	-19%	105%
house	-87%	12%	-64%	133%	-96%	183%
jazz	502%	-85%	-59%	171%	-97%	-99%
classical music	597%	-15%	-89%	-21%	-98%	-88%
folklore music	167%	113%	14%	-76%	-32%	-70%
musical	119%	3%	-11%	17%	7%	-75%
opera / operetta	342%	24%	-80%	-37%	-36%	-69%
pop music	-17%	24%	-42%	-15%	44%	-37%
punk	-91%	44%	0%	259%	-4%	-61%
reggae	-64%	-47%	-69%	951%	-99%	-99%
rock	-46%	-22%	43%	37%	33%	-60%
rock´n´roll	53%	99%	15%	132%	-29%	-86%
techno	-61%	-21%	54%	4%	-72%	117%

[7] Affinity is calculated as a quotient of frequency in a specific target group to such quotient in a comparative group, which in this case is the entire adolescent population. In order for the results to be transparent, the base (100%) is subtracted from the ratio.

[8] Due to extreme affinity values in certain types, the range from -20% to +20% towards the final affinity group is considered to be neutral affinity (indicated by a horizontal arrow).

The aforementioned difference between the number of preferences for selected genres with strong affinity to a great extent results from the substance of using factor analysis to construct the presented model. The key fact being that factor analysis explains 56% of the total variance, but all respondents were included in the typology, created by cluster analysis. This means that 44% of unclassified adolescents (in terms of genre groups) in our sample were subsequently divided between six preferential types, and they thus always represent certain variance from the fundament of cluster. And for that reason, it is essential to respect the updated genre bands, characteristic for given specific groups, when interpreting the results.

Diagram of musically preferential typology of Czech and Moravian adolescents



Typological profiles

Based on extensive analysis of the intersection in musically-preferential categories and various areas of adolescent life (demography, leisure time, fashion, media, attitude to the world, self-appreciation, attitude to drugs, etc.), six profiles of adolescent groups describing the above stated intersections were created.

Aestheticians

Their favourite genres mainly include classical music and jazz, then also opera (and operetta), and to a smaller extent musicals, folk and brass music; on the other hand, there is low popularity of rock and metal genres, hip-hop and dance music. They represent 11% of the adolescent population.

In terms of gender, men are slightly prevalent. Following completion of secondary school, they continue to study on a tertiary education level more than other peers. More frequently than other adolescents, they are residents of large cities and at the same time they also fall into the highest socioeconomic levels. Their parents more frequently have university education and higher incomes.

In terms of activities, they are prominent in religious groups and student organizations; on the other hand, membership in sports teams is rare for them. They often spend their leisure time on various forms of cultural activities, such as going for concerts, theatres or museums; they also regularly do tourism and go for walks. Their occupation with computers and internet is less regular, yet still above average; their activities focused on consuming media and sport, possibly dance, are on the weaker side.

They do not have very clear-cut formats in individual types of media, they slightly incline to internet and radio; their consumption of other types of media is less intense. In terms of media topics, they prefer news and economic or business topics; on the other hand, they pay less attention to sex contents, but also to music, which may be explained by the fact that market saturation of their favourite music at media level is not as significant as with other genre groups.

In life, they mainly give importance to spiritual and intellectual values (including belief in God) and personal contentment; on the other hand, such values as personal attractiveness and wealth or self-fulfilment have little importance for them. Their intellectual potential and maturity, in

which they surpass their peers, is reflected in their judgments that the important things in achieving success in life are primarily political affiliation and political opinions, which can paradoxically be overestimated owing to their limited experience provided by mass media and their upbringing by educated parents or educational institutions. Their increased involvement in social issues is reflected in their perception of up-to-date problems, for which they (relative to their peers) consider to be mainly macro-economic issues, social policy, issues pertaining to the judicial field and drugs. Their attitude to drugs is usually opposing. The value of belief in God is associated with the fact that there is the largest ratio of believers in this group. They also show the highest sense for environmental behaviour.

In terms of self-appreciation, they usually have a healthy self-esteem, care about the well-being of their loved ones and show fewer tendencies to base their self-appreciation on the opinion of others. They rarely do things at the last minute, they do not very frequently make intuitive decisions, they probably decide based on complex processing of (available) experience and information. They do not aspire to achieve high social status; they live for more than just pure enjoyment. They are very creative and open to experience.

Traditionalists

They are mainly fans of such genres as country & western and folk music, and to slight extent also of folklore music / national songs, brass music and rock'n'roll, they do not like rock music and hip-hop. They represent 9% of the adolescent population.

In terms of gender, girls and boys are represented in the group equally. They are the second group in the order to most frequently follow-up their secondary school with university studies. Almost half of them live in settlements with up to 5 thousand residents. They usually come from lower socioeconomic classes; almost two thirds of the heads of their families have completed vocational or only primary education.

In terms of special interest organizations, they tend to be members of special interest organizations and sports clubs more than their other peers, they participate less in student organizations and music associations. They mostly spend their leisure time by consuming different media (watching television, listening to music or reading), and partially also by activities related to home. When compared to their peers, their pursuit of culture,

computer and internet, as well as sports and dance, is below average. In terms of fashion, they only have minimal tendency to incline to a specific style.

When it comes to media consumption, they are, as compared to others, prominent in reading newspapers, their consumption of other media, except television, is in their case below average. Their favourite topics in media are, apart from news and politics, also topics related to domestic activities, such as cooking, and also health and family. When compared with their peers, their preferences at media level are rather close to the generation of their parents, which also shows in other fields of their lives (e.g. music preferences).

Things they consider important in life are mobility, intellectual and spiritual values, love and altruism, and partially also self-fulfilment. When compared to their peers, they consider personal attractiveness, wealth and personal contentment to be unimportant. They feel that in order to achieve success in life, the most important thing is to possess innate attributes (race, place of birth or gender), partially political affiliation as well as education and effort; they give little importance to flexibility and sense of entrepreneurship, and also wealth and connections. In terms of the problems of today, their perception is most sensitive to the generally falling morale of the society and partially also to the macroeconomic conditions and the social policy of the country. Their attitude to drugs is dismissive, their belief in God, although stronger than in majority of their peers, is still quite marginal. They have a relatively high sense of environmental behaviour.

When it comes to self-appreciation, they are very often pessimistic about the future, anxious and with poor self-esteem. They have a tendency to create opinion about themselves based on the opinions of others, and they do a lot to get people like them. In life, they are conservative, rarely do things at the last minute and do not depend on intuitive decision making.

Rockers

In terms of music preferences, this group has, apart from Hip-hoppers, the most clear-cut attitudes. They like heavy metal and hard rock very much, they somewhat like rock and techno music and refuse other genres. They represent 14 % of the adolescents.

Almost ¾ of this group are boys. When compared to most of their peers, their education is lower, in other words, they have mostly completed primary schools; however, their actual ongoing education cannot be specified. More than ¼ live in settlements with up to one thousand residents, on average they form a group living in the smallest municipalities. The socioeconomic level of their families is average when compared to their peers. Heads (one of the parents) of their households show the lowest level of education in all the groups followed.

Their daily activities are specific to using computers. Their recreational activities are relative to others and mainly concentrated on memberships in sports clubs, partially also student organizations. Their leisure time is regularly spent doing sports and going to various forms of parties, apart from that, as already mentioned, they spend time at their computer and doing housework, consuming media or outdoor activities (other than sports) are not as frequent. When it comes to fashion, females in this group especially are significantly prone to stylish clothing, which is fashionable, unimaginative or on the contrary sexy, boys are especially keen on sporty clothing (and leather apparently).

In terms of media consumption, below average consumption is typical for them at all levels as compared to others, they only devote more time to the internet. Topics, which they tend to prefer in the media to a good extent, result from the fact that the group mainly consists of boys: computers, cars and motoring, science and technology, sex and erotical contents, and partially also news.

In terms of things, which these adolescents consider important in life, this group is a phenomenon in the sense that their attitude to most values is negative, only the importance of attractiveness and wealth is slightly highlighted. Their attitude to factors, which they consider important in achieving success in life is similar, they only emphasize wealth and social connections, partially also flexibility and sense of entrepreneurship; however, they do not have much confidence in education and effort, and absolutely none in political affinity and opinions. Their negativism, or some form of rebellion, is also reflected in the fact that they as a matter of fact cannot see any social issues (again, as compared to their peers).

This group is also difficult to classify in terms of self-appreciation, as unlike their peers, there is no positive inclination towards any monitored category apart from a slightly higher score on spontaneity level.

Furthermore, they do not even show higher goal-seeking, they do not conform to others; they are not conservative or too egocentric.

They differ from other peers with their above average positive attitude to drugs and alcohol. Their subjective attitude to their own faith maybe somewhat surprisingly high, but in fact it is rather average. And also when it comes to their attitude to environmental behaviour, individuals, who are pro-environmental, are represented in the group in the same extent as non-pro-environmental individuals.

Alternatives

They represent an exceptionally strong preferential group of reggae (more than tenfold preference as compared to others), punk, jazz, and also hard rock, rock'n'roll and house music; they are however not very keen on brass music, folklore music, folk music and artificial genres. When compared with their other peers, they prefer the most abundant and diversified spectrum of musical genres. They are the smallest preferential group with 8% representation in the adolescent population.

In terms of gender, boys are slightly prevalent. Their education falls rather into the lower categories, which is nevertheless influenced by their lower average age. From the settlement size perspective, they belong to adolescents from large agglomerations. From the perspective of socioeconomic classification, they fall into groups with higher income, which is related to the education of their parents or heads of households, which is above average.

Their daily activities are characteristic for time spent on the internet and on the contrary, little time devoted to household chores. They are most of all involved in music associations, which can be put into context with their extensive portfolio of preferred genres. During their leisure time, they mainly prefer cultural activities and media consumption and on the other hand, they are rarely actively involved in sports and outdoor fun, e.g. dancing. In everyday life they usually do not prefer any fashion style.

Their media communication is in extent, which is above average, focused on out-of-home media, the internet and newspapers. Their media interests are, similar to their music preferences, extensive and diverse. They are highly interested in reviews of cultural activities and programmes, tips on leisure time, arts, music, and also politics, computers, advertising and marketing, science and technology, and partially also news.

They have a clear profile as to the important things in life. They consider love and altruism, personal contentment and partially also self-fulfilment to be especially important; on the other hand, such values as attractiveness and wealth, intellectual and spiritual values and mobility are less significant to them. They consider factors, leading to success in life, to be flexibility and sense of entrepreneurship, and partially also education and effort; on the other hand, they find wealth and connection, as well as innate attributes such as gender and race, to be unimportant. In terms of current risks and issues, they emphasize relative to other the large development in technology, or more precisely the over technologized civilization, alongside environmental risks (exhausting of resources, nuclear power stations), issues in judiciary area and corruption.

Their self-appreciation is typical for more low self-esteem, pessimism and uncertainty, a tendency to conform their self-appreciation to others and the need the be liked by them, a reasonable degree of spontaneity, low egocentrism level and focus on their own benefits and average conservatism and creativity.

In the area of drugs, their attitude towards them is more positive than that of their peers; nevertheless, more than half of them are opposed to drugs and alcohol. The group ratio of atheists is rather above average. The ratio of individuals with ecological thinking or behaviour is slightly higher.

Hip-hoppers

These are individuals who only like hip-hop, techno and house music, and their attitude towards other genres is more or less negative. They represent 21% of the adolescent population, which makes them the second largest group.

In terms of gender, there is a slight prevalence of boys. As pertains to age, they are on average a little younger than the other groups, only the bare minimum continue in tertiary education once they complete their secondary school studies, which should to a certain extent be attributed to their young age[9]. They mostly live in large towns and cities. From the perspective of socioeconomic classification, they usually fall in the middle classes. Their parents mostly have secondary education.

[9] The results are based on values observed at the time of research; the author did not reflect respondents' further development.

In terms of recreational activities, memberships with sports clubs prevail; on the contrary, their involvement in special interest and religious organizations is rather negligible. They usually devote their leisure time to computers and the internet, or possibly sports and going to parties (or more precisely dancing); on the other hand, they are rarely involved in outdoor physical activities or household chores, not even in culture. Their specific sense of fashion is clearer in boys than in girls, who prefer fashionable clothing, while boys apart from hip-hop "uniforms" also prefer sporty style.

In terms of media consumption, the group is open to consuming television, magazines, radio, the internet and in the above average extent, also the cinema. As per media topic, they show disinterest in most areas, the only exceptions being motoring and advertising.

To them, it is mainly egocentric values that they perceive as important in life, such as personal attractiveness and wealth, personal contentment and partially also mobility; the values of love and altruism or self-fulfilment are rather alien to them. They believe that in order to achieve success in life, wealth and social connections are important, and to some extent also flexibility and the sense of entrepreneurship; on the other hand, they perceive political opinions or membership in the right party as redundant. From the issues of today, they highlight corruption, dissatisfaction with the work of the Police, various forms of crime, bureaucracy and other issues on state policy level. Their attitude to drugs is mostly negative, which is at variance with the stereotypical expectations associated with dance music listeners (which is who Hip-hoppers are) that drugs are, on the contrary, consumed on above average extent[10]. Their personal appreciation of faith is also below average, and as pertains to the environment, they have rather average environmental attitudes.

Their self-appreciation is reflected through their egocentric attitude to their own self, emphasizing the meaning of life in enjoyment, tendencies to provoke and desire to achieve a high position, where this desire is however not associated with their own effort to actually achieve something. Their decision making is more intuitive and they often leave solving things (issues) to the last minute. Certain non-conformity shows in their unwillingness to

[10] Despite the nature of data collection, which is on questions related to drugs collected in the form of independently filled questionnaires, it is possible that adolescents are afraid to confide about their own drug experiences, although only on anonymous questionnaire level.

conform to others or be liked by them. They are not conservative, nor very creative. Their overall self-esteem is slightly lower.

Mainstreamers

They are the largest preferential group with 37% representation in the population. Their favourite genres are pop, rock, disco and musicals, their liking of other genres is either average or negative.

Almost two thirds of the group are girls. In terms of age, they represent the widest band amongst all groups, which is also partially given by their large number. Their allocation in terms of municipality size is evenly divided amongst all types of municipalities. From the socioeconomic classification perspective, they also show average values. As is common with most of the groups, they come from families where the head has secondary education.

In terms of activities, there is high occurrence of domestic hobbies, which corresponds with the gender stereotypes pertaining to women's activities in our society, as their representation in the group is significant. Their recreational activities are often associated with sports; they are a little less profiled in other areas than their peers. They mostly spend their time consuming the media; on the other hand, time spent on computer or cultural activities is minimal. In fashion, girls prefer fashionable clothing; boys on the other hand fancy sporty clothing.

At the media level, they consume television, magazines and especially radio; their consumption of other media is below average. A higher proportion of girls are particularly clear from the popularity of media topics such as fashion and clothing, living, TV series and partially also entertainment; on the contrary, there is disinterest in "technical" contents, such as science and technology, nature, computers, economy and business.

They find self-fulfilment to be significant in life, especially in the sense of a quality family, emotional and material provision; love and altruism have relatively high value for them and partially also personal attractiveness and wealth. From the perspective of factors, which are important in life, they show partial emphasis on all monitored values, such as education and effort, political affiliation and opinions, flexibility and sense of entrepreneurship, wealth and connections and a little more

than the above mentioned areas also on innate characteristics[11]. In terms of issues they see as significant in today's world are globalization, issues in the underdeveloped countries or the decline to disappearance of villages, which are phenomena that probably only relate to them implicitly through the mass media they consume in higher volumes. Their attitude to drugs is negative; they show extreme absence of faith in themselves. Their attitude to environment is the least ecological from all groups, nevertheless individuals with pro-environmental attitudes and non pro-environmental attitudes are more or less balanced in the group.

They show no extremes when it comes to the extent of self-appreciations. Their self-esteem is usually good; a higher level of social sensitivity is shown in the fact that they are keen for others to have a good opinion about them and their will to be liked by others. Their extent of egocentrism is in compliance with their attitudes to the world – rather below average; they are very slightly conservative. Unlike their peers, they show more organized or responsible behaviour; however, they are less creative.

Conclusion

Music preferences in the life of adolescents exhibit features that not only distinguish them from the majority population but also amongst each other. The ascertained aggregate perspective on adolescents' popular genres confirms that as compared to the entire society, adolescents show an above average liking of genres that are ranked as marginal by the majority of the population. Nevertheless, even adolescents themselves show various levels of such genres' popularity, which leads to differentiation of individual groups of listeners. Adolescents often listen to several genres at one time, however, their existence in the preferential portfolio is not random; adolescents have the tendency to listen to similar groups of genres as their other peers. These tendencies are often explained as products of adolescents' shared social characteristics, such as education, the socioeconomic level of their family, influence of peers, influence of upbringing and mass media, and also the influence of personality traits. An individuals' tendency to

[11] In this respect we can conclude that owing to the greater representation of girls apprehension resulting from gender affiliation has shown, which young women can perceive as a limiting factor on their path towards success. However, this presumption must be regarded as unfounded.

listen to similar groups of genres as their peers and acquaintances is fairly resistant not only to changes of cultural and social nature, but its specific form has very similar features amongst wider regions, at least the western ones. These include the tendency to prefer genres with a common higher artistic value, such as classical music or jazz, or possibly genres symbolising rebellion towards social authorities, such as some types of hard rock, metal, but also hip-hop or dance music.

The pilot analysis to this piece (Mužík, 2007) has shown that there are a minimum of four musically preferential groups in the adolescent population, out of which each emphasises different combinations of musical genres without any mutual group genre collision. A finding that the preference for certain musical genres is also associated with the actual characteristics of music, not only in the audio sense (such as the music having pronounced bass or the fact that it is relaxing), but also in the functional sense (e.g. the fact that music soothes, fills silence or helps to overcome sorrow), is also partially new. From the perspective of the music's audio characteristics we can claim that people listen to specific music to some extent because they have chosen some specific features. E.g. pop music listeners like romantic music, but refuse music with pronounced basses, wild and rough music, while these are the preferred features for heavy metal listeners. These audio features are closely related to the functional potential of music. If, for example, adolescents want to adequately fill the silence, evoke the required feelings in themselves, activate themselves and overcome boredom, they opt for energetic and rhythmic music, while if they want to feel less lonely and overcome sorrow they opt for romantic, optimistic and relaxing music. Based on these observations we believe that listening to music is, to a certain extent, motivated by fulfilling the current needs, which is in compliance with the theory of needs and gratification (Rosengren et al., 1985). We have also observed that the relation to music genres and the musical characteristics of music as well as their functional potential differs based on gender as well as musical activity, which in active individuals play a role in their higher tolerance to more genres. We confirmed the conclusions of older researches that music is still being listened during considerable part of the free time (compare Zilmmann and Gan, 1997), although we revised an older claim that adolescents often listen to music at home; today, it is probably more through mobile devices such as smartphones, MP3 players, etc.

The results of the study, the conclusions of which are the contents of this piece, focused on the context between the music preferences of adolescents and their social characteristics, the manner in which they spend their leisure time, their image, media consumption, the system of values and their self-appreciation. By dividing adolescents according to their wider music preferences, we have acquired six groups of various sizes and portfolios of favourite genres, the core of which were the so-called mainstream listeners (or Mainstreamers), against which we were able to define the five remaining minority groups (Rockers, Aestheticians, Traditionalists, Hip-hoppers and Alternatives). When generalized, the result indicates that the adolescent population shows analogy to the so-called normal division, where an average group (Mainstreamers) represents the average in the majority of monitored areas, in a way becoming a benchmark for other groups. Deviations from the average are then monitored at various levels. For example, a higher social status of some adolescent families is associated with preference for artistic genres, such as classical music, opera or jazz. Similarly specific intersections also occur on the level of the size of settlement at the place of residence, but also gender. It is girls, who form the core listeners of pop, while rock genres fans are usually boys. Groups of listeners also differ in the way they spend their leisure time, dress or consume the media. A multi-tier comparison of the system of values and self-appreciation of individual preferential groups, which often show significant differences between one another, is significant. As it was, owing to the extent of this study, unrealistic to investigate the causes for such differences, we have avoided a speculative approach to their interpretation, and submit their solution to further empirical approach.

The results of both empirical studies, together with the previous theoretical and empirical basis of other authors, is summarised as follows. Music genres are, regardless of their specification as to their philosophy or mass media, partially defined by their listeners in the sense that preference for such genres is seldom alone; on the contrary, from an individual's perspective it is natural to combine such preferences and centripetal preference tendencies are usually significant for specific genres, which are not combined with other genres. In terms of musical characteristics' categories, music genres are not the only factor leading to their preference, there are also aesthetic and audio characteristics of such music, but also various motives, leading to listening of specific genres. In terms of music being a part of adolescents' wider life, it is becoming clear that preferences

for some genres are not only related to their listeners' social background but also to various activities, their structure of values and figuratively, also to the adolescent's personality traits and his/her identity.

In concurrence to the facts that were outline in the introduction, the author is aware that the presented findings are of a transient nature and that they will, sooner or later, have to be updated; which is absolutely fine if we recognize the very variability of the stipulated phenomena in time. In context, the weak point of the existing as well as past approach to the issue, which so far ignores historical reflection of its findings, should be mentioned. And it is actually reflection that is key to understanding the cyclicality, which is noticeable in our culture when individual generations change. In each period, there are subcultures defining against the majority society and making its superiority relative, creating their own values and the way of existence, which at the end change the very culture as well as these subcultures into something new. And if we are able to comprehend the mechanism of these changes, we will also be able to better understand the role of music in the lives of not only adolescents.

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Classroom Composing in Music Education with Regard to Minimal Music

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Abstract
The contribution, resulting from the dissertation thesis of the author, deals with the topic of classroom composing in Music Education in relation to the possibility of accessing contemporary music. It briefly introduces the individual partial aspects of this issue and subsequently, specifies the topic citing minimal music as an example, which is characterized by features and composing procedures that can be used when working with children on their creative projects. The contribution describes some of these projects in more detail and examines the practical application of compositional principles of minimal music.

Key words
classroom composing, contemporary music, minimal music, creativity

Contemporary Music in Schools of Today

Contemporary music represents a challenging task within the today's musical education. Due to the plurality of its styles and the diversity of aesthetic resources and composition concepts, it has edged to very thin interest and currently has only marginal role in teaching. It is very often not included at all in educational plans and curricula or there is only borderline inclusion in higher classes. The "image" of contemporary music is severely distorted and it just happens too often that it is rejected not only by pupils but to a great extent actually also by the teachers. We could assume that the teachers do not know how to handle this topic. And if they do decide to step into this overflowing river, traditional teaching methods, which is interpretation combined with listening (as the most frequently used work procedures), do not have the ability to adequately captivate pupils and provide them with sufficient insight into a world of sounds and expression that is completely new to them.

However, this situation also highlights a key problem – the required changes in the concept of Music Education and Teaching at Czech primary and secondary schools towards greater representation of creative activities. The current state of Music Education shows many shortcomings, which primarily include insufficient representation of creative activities and excessive emphasis on theoretical knowledge of music (without deeper understanding and authentic experience). Over time, Music Education due to other circumstances (social or political) became a passive subject, understood as uninteresting for children and which, furthermore, in most cases does not reflect their extra-curricular musical interests. When compared with other types of education in the field of aesthetics – art, physical, drama or literary education – the difference is obvious straightaway. In all these educations, children have the chance to actively develop their talent from the very beginning (however inartistic their efforts may be at first). It would probably be hard to imagine a situation where children would sit at their desks and paintings and art techniques would just be read and talked about.

So, what prevents children to have the possibility to develop their own creativity in the field of music as well? The Music Education of today is still closely linked with the European major-minor musical tradition, its schemes, musical notation, enshrining in tonality, etcetera. At the same time, room for creative expression is limited to mere mechanic imitation of predetermined schemes and patterns (the type of exercise as question – answer, an echo, the opening – the conclusion or accompaniment to a folk song). Interpretation is generally accepted as a standard form of musical creativity. It was already in the mid 1960's that R. M. Thackray drew attention to the fact that "…*musical performance or interpretation is usually looked upon as a legitimate substitute for creative work*. " According to him, such approach is incorrect. "*Music in education has for too long been regarded as mainly an interpretative art; the creative aspects of the subject have been either merely dabbled with, or left to the exceptionally gifted.* […] *Singing songs by rote and reading, playing and listening to the music of others is no substitute to a child for making up his own music*."[1] And as added by Vít Zouhar, such concept of Music Education brings many disadvantages. It intensifies intolerance towards musical multiplicity, limits understanding, often traumatizes and stigmatizes, and invites the misconception that all

[1] THACKRAY, R. M. Creative Music in Education. London 1965, p. 10-11.

music has already been written and all composers are extinct.[2] Another consequence of this fact was also the loss of reflection for the current state of musical culture and the society in general.

Music education in our country shows signs of certain conservatism. Music, of which children are taught in schools, is mainly music of the 17th to the 19th centuries. However, a school must not become a museum, which merely cherishes the few most significant pieces from the past centuries. It must become more open to the present. And it was actually the development in music after 1945 that prompted changes in the direction of musical teaching. Many composers and educationists began to result from the complexity of experimental music and the richness of its composition base. However, conveying it to school children requires new adequate teaching methods, which are experimental, open, process orientated, flexible and productive, and not merely receptive.

Learning must no longer be a mere handover of ready-made knowledge, but a process of seeking facts through creative activities. And although this process is not the quickest path to the finish line, it leads to new experience and complex understanding through constantly asking oneself questions, trying options, occasional wandering and finding answers. In this case, knowledge is constructed through direct personal practice and experience. Practical activities bring the joy of seeking and finding new things, but, at the same time, understanding the facts already known in new contexts. In English, this approach to teaching is succinctly called *learning by doing* or also *discovery learning*. However, in this case, the process of cognition cannot be identical for each individual (and knowledge cannot be handed over to everyone through the same linear process). Quite to the contrary, it is strongly individualised and results from individuals own activity, his/her mental and physical prerequisites, experience, abilities, skills, talent and many other factors.

And changing the overall concept of Music Education towards activity and creativity in relation to the principles of contemporary music helps to implement the so-called classroom composing.

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[2] ZOUHAR, V. Slyšet jinak. Každý může být skladatelem (Different Hearing. Everyone Can Be a Composer). His Voice, 2005, Issue no. 3, p. 11.

Classroom Composing

For the vast majority of public, composing is perceived as an activity that can only be performed by exceptionally talented individuals – geniuses – who often hold supernatural or even magical abilities, gifted to them by God (the archetype of Mozart, as the "child prodigy"). Apart from this, there is also a deeply ingrained belief that one must first acquire a large amount of theoretical knowledge (associated with traditional notation and musical language) and practical skills before he/she can even begin to compose.

It is with a similarly reserved approach that people perceive natural intuitive exploring of the world of sounds by preschool age children. It is called (annoyingly) "noise", and it is at best tolerated and at the worst, punished. I think we can fully identify with the opinion of Susan Kenney who claims that "*…maybe the reason Western culture thinks that only a few gifted people can become composers is that we lose most of our composers before they turn eight*."[3] Playing with sounds, exploring them, spontaneous composing of little pieces and songs is an everyday part of each preschool child, just as any other activity. However, this natural interest later can only be developed provided there are suitable conditions provisioned at school.

The term classroom composing (in the Czech language sometimes also known as "elementary composition")[4] is usually understood as creating simple musical structures through simple musical elements and the principles of composition. The very definition of composition expanded greatly from the second half of the 20th century under the influence of

[3] KENNEY, S. Every Child a Composer. General Music Today, Winter 2007, p. 31.

[4] The terms classroom composing can be found in literature for the first time probably in 1960, in an article called Elementary Composition Project by an American author Janice S. Smith (SMITH, J. S. Elementary Composition Project. Music Educators Journal, 1960, Issue no. 2, p. 85). In English literature, the most frequently used terms are classroom composing or more general (creative) compositional activities. The British music teacher John Paynter talks about making up music or positioning things together (PAYNTER, J. Making Progress with Composing. British Journal of Music Education, 2000, Issue no. 1, p. 8). In German texts, the most frequently used terms are Musikmachen, musikalische Gestaltungsarbeit (making music, musical artwork) (Ortwin Nimczik), or possibly schöpferisches Musizieren (creative music-making) (R. Murray Schafer) or even simple Musik erfinden or komponieren (invent music or compose) (Hans Schneider).

John Cage and other authors to all operations with musical material. Cage simply describes music as "*organization of sound*"[5] and defines the process of composition as follows: "*Structure in music is its divisibility into successive parts from phrase to long sections. Form is content, the continuity. Method is the means of controlling the continuity from note to note. The material of music is sound and silence. Integrating these is composing*."[6] Therefore, composing is a process of organising sound and silence in the broadest possible concept.

Classroom composing can be put in direct contrast to receptive activities in Music Education and analyses of various pieces, as it often provides children with a unique opportunity for their own creative expression, and thereby to gaining valuable and lasting musical experiences. As Keith Swanwick also points out - "*Curiosity is not aroused by dictating notes on the lives of musicians or on social history, or by always telling pupils what to listen for, or by treating a performing group as if it were a kind of machine. There should be some scope for choice, for decision-making, for personal exploration*."[7] He feels that it is essential to pique children's curiosity, their desire for discovering the unknown, and at the same time give them space for making their own decisions and their own responsibility. And experimental music is a good tool for inspiring creativity and productivity in children. A pupil who wants to create no longer needs to learn a heap of burdensome rules first. All of a sudden, he/she has a great amount of musical material that can inspire him/her to his/her own artistic activity.

Behind the first projects, focused on classroom composing and utilising the new findings from experimental music, was the effort to promote contemporary music in Music Education. Thus, actually not composing itself but learning about contemporary music was the main aim of the first project in the United States, Canada and Great Britain from the 1960's. The first American projects – especially the *Contemporary Music Project* [8], which took place under the leadership of Norman Dello Joio between 1959 and 1973 (before 1963 under the name *Young Composers Project*) – were followed with greater or lesser success by the musically progressive

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5 CAGE, J. *Silence. Lectures and Writings*. Middletown 1979, p. 3.

6 CAGE, J. *Silence. Lectures and Writings*. Middletown 1979, p. 62.

7 SWANWICK, K. *Teaching Music Musically*. London 1999, p. 54.

8 The Contemporary Music Project for Creativity in Music Education. Music Educators National Conference. *Music Educators Journal*, March 1968, p. 41–72.

European states over the next thirty years, lead by Great Britain, Germany and Austria (whose efforts on smaller scale also resonated in our country).

As it is in Great Britain, where from the mid 1960's, we at various types of schools see projects focused on creative approach in Music Education, coordinated by the University of York. Projects were based on the work of two leading representatives of the so-called progressive ideology[9], the music teachers John Paynter and Peter Aston. They linked the impulses of experimental music with music pedagogy and summarized their findings in the book *Sound and Silence. Classroom projects in creative music* (1970).

The general objective of their *Creative Music Project* was again to make contemporary music accessible to children. Unlike in the American project, emphasis shifted from learning about music and instructing to one's own creative work and experience: "*We believe that young people deserve a truly liberal education, alive with the excitement of discovery. This excitement is a first step: the details, disciplines and skills will follow. Without a sense of adventure true education is impossible.*"[10] It was no longer the existing piece that was the centre of attention, but the child as a unique creative personality. The primary aim was children's creative work with inexhaustible number of sounds, which contemporary music provides. Experimenting with them, remembering them and subsequently interpreting one's own pieces (i.e. a procedure as: basic musical material – structure – interpretation). In other words "*…composition seized to be a mere tool for learning about the already existing music, and became the resource, the aim and also the equivalent topic in music education*".[11]

Apart from these projects, there were already a number of authors in the 1960's who created their own concept of creative music education in relation to contemporary music. These include mainly the British music educationists and composers George Self and Brian Dennis, the Canadian composer and environmentalist R. Murray Schafer, and in Germany Gertrud Meyer-Denkmann.

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9 Term by a Britis theoretician Martina Skilbeck.

10 PAYNTER, J. – ASTON, P. *Sound and Silence. Classroom Projects in Creative Music.* Cambridge 1970, p. 3.

11 ZOUHAR, V. Komponování ve třídách. Poznámky k prvním americkým a britských projektům (Classroom Composing. Notes to the initial American and British projects) . In *Inovace v hudební pedagogice a výchově (Innovation in Music Pedagogy and Education). In honour of Lee Kestenberg, Miscellanea from International Musicology Conference, held from 29.11. to 01.12.2007 at the Art Centre of Palacky University in Olomouc*. Olomouc 2008, p. 188.

During the second half of the 20th century, the Czech Music Education system and pedagogy were severely influenced by the totalitarian regime in the country, which for many years isolated it from the current events in western countries. At the same time, the strong tradition of Herbart's concept of school persisted (and we should add that it still persists!), which considerably limits the room for pupil's own creative activity.

"I believe that even in our country, it should be the initiative of the faculties of education to strive and create very close contacts with young composers, and involve them in the issues of music education, although it is undisputable that even composers themselves must be fully aware of their responsibility and their share towards music development of youth. It is after all in their own interest to capture as many dedicated young listeners for their work as possible."[12] These were the words that Libor Melkus said in response to statements that he heard at the 1964 ISME conference in Budapest (amongst which was also the contribution of *Contemporary Music Project* initiator, Norman Dello Joio *New music and creative music education*[13]) - a truly visionary idea in the Czech environment, which has not been fulfilled for almost the ensuing forty years.

In our country, the then Czechoslovakia, the first attempts at including creative activities in general into the music education curriculum started to appear during the second half of the 1960's. Creative activities were to complement the two main components of music education, which is singing and listening. However, there was no room for these activities to deviate from the traditional concept of music education. Creativity was still limited to mere reproduction and mechanical imitation of predefined schemes, which were based on the western major-minor and the local folk traditions. Moreover, these attempts for changing the concept of music education came against considerable resistance and objections of both academic educationists, as well as the teachers themselves. They believed that *"…musically creative manifestations are only the privilege of those who are musically gifted and therefore, musical improvisation cannot be a generally valid component of basic music education. Forcing all children*

[12] MELKUS, L. Problematika hudební výchovy na všeobecně vzdělávacích školách a příprava hudebních pedagogů. (The Issue of Music Education at General Education Schools and Training of Music Teachers, In HOLZKNECHT, V. – POŠ, V. (ed.) *Člověk potřebuje hudbu (Man Needs Music)*. Prague 1969, pp. 75–76.

[13] POLEDŇÁK, I. – POŠ, V. (ed.) *Konfrontace (Confrontations)*. Prague – Bratislava 1968, p. 20.

to improvise is apparently a mistake, as more than half of them have no prerequisites for such activity, and nor are they interested in it."[14] There is rejection and condemnation of experimental music at the same time. As a result, a dominant feature of the main stream music education for a long time remains to be "*…music, which has already been created and musical territory, which was traditionally handed down*"[15]. The requirements of Libor Melkus could not be put into practice.

It is only today, with the entry of new Framework Educational Programmes, that the set stereotypes are being broken but it is only happening very slowly. So, what is the concept of creativity in music education in the newly established FEP for primary education? music education (together with Art Education) forms part of the educational area of Art and Culture here, which aims for transmitting the so-called artistic acquirement of the world (acquirement with an aesthetic effect) to the pupils. This is done through activities (vocal, instrumental, musically-motoric and listening) at the level of production, reception and reflection. And, although music education with such concept should also lead to learning through one's own production, the creative vocal and instrumental activities only remain at the level of controlled improvisation (rhytmisation, melodisation, music games: the echo, question – answer, creating preludes, interludes, postludes, etc.). And, although musical pedagogy abroad has been dealing with classroom composing for almost half a century, the FEP for primary education does not mention this issue at all. Nevertheless, nothing is stopping teachers from making the effort to introduce new creative methods as part of creating School Educational Programmes.

In 2001, a project called *Different Hearing (Anders Hören)*[16], which strives to develop the principles of classroom composing in the conditions of the educational system in the Czech Republic, was established at the Olomouc Department of Music Education. The project with its methodological resources builds on the British-German programme *Response* and especially the Austrian *Klangnetze*. The initiator and the mastermind behind it is Vít Zouhar (born 1966), a renowned composer, musicologist and educationist,

[14] SEDLÁK, F. et al. *Nové cesty hudební výchovy na základní škole (New Paths to Music Education in Primary School)*. Prague 1983, p. 218.

[15] ZOUHAR, V. Slyšet jinak: každý může být skladatelem (Different Hearing: Everyone Can Be a Composer). *His Voice*, 2005, Issue no. 3, p. 10.

[16] See also www.slysetjinak.upol.cz

who gradually formed his own stable organizational team.[17] Experienced Austrian lecturers, headed by Professor Josef "Seppo" Gründler, Cordula Bösze and Professor Hans Schneider participated in the development of the Czech project until 2005. Close cooperation was also developed with the Janáček Academy of Music and Performing Arts, especially with Professor Ivo Medek and Markéta Dvořáková.

When wording the general starting points, aims and requirements in relation to music education and creativity development, the project authors were also inspired by the ideas of John Paynter, R. Murray Schafer and other pioneers of classroom composing. That is also why one of the main intentions of the *Different Hearing* project is *"…making music education an exciting, creative and playful discipline, which is rich in experience, just like for example Art Education can often be."*[18] For *"…knowledge is not something to be mechanically communicated and accepted at school, it is something created through active process whereby a teacher plays the role of a guide, not a scholar. Knowledge and understanding is thus established through a multiple interactive process between pupils and their teacher; however, not in a single direction only."*[19] The project aims to break down the stereotypical concept of music education lessons, which has not altered much during the past fifty years, and does not provide pupils with sufficient room for their own creative acts. *"The Different Hearing project originated from efforts to transform music education into a field, where the role of creativity is just as important as reproduction, creating music as it is playing,where the significance of creativity exceeds the limits of musical pragmatism, and music and musical appreciation are not only seen as practicing and preserving the European musical multicode but where everyone has the opportunity of developing their talents and skills regardless of their musical and sociocultural experience thus far."*[20] At the forefront of the *Different Hearing* project is

[17] Members of the team are also other members of the Olomouc Department – Jaromír Synek, educationist, choir-master and maker of nontraditional musical instruments, and Gabriela Coufalová, a flutist and educationist.

[18] FLAŠAR, M. Postmoderno vysvětlované (nejen) dětem (The Postmodern explained (not only) to Children). An interview with a composer and musicologist Vít Zouhar. *Opus Musicum*, 2005, Issue no. 4, p. 34.

[19] ZOUHAR, V. Hudební výchova bez bariér? (Music Education without Barriers?) To projects Klangnetze and Different Hearing. In *Miscellanea of the Faculty of Education, University of Prešov*. Prešov 2004, p. 75.

[20] ZOUHAR, V. Slyšet jinak. Každý může být skladatelem (Different Hearing. Everyone Can Be a Composer), *His Voice*, 2005, Issue no. 3, p. 10.

concentrated work with musical material and thereby related development of children's perception and experience of their own composition. We are also working with elements and resources of contemporary music, although, as Vít Zouhar adds, *"…aesthetics of experimental music are one of many in the programme…"*.[21]

The general objective of creative efforts within classroom composing is "*…knowing music, rather than knowing about music.*"[22] This is understanding music, not only mere gaining knowledge about music. In case of (elementary) composition, we must differentiate two basic elements – the actual (creative) process of composition and the final product of this process (i.e. the composition). In principle, both of these components exist in mutual symbiosis, i.e. the process leads to a product. But while for example in the commercial world, a product has a privileged position, in the field of musical teaching it is the creative process that is key. During the course of this process, a child is given the option of expressing his/her own ideas and feelings through music, and to make his/her own decisions, which result in specific sounds and their arrangement. And it is through this process that a child learns and develops his/her personality. Keith Swanwick draws attention to the fundamental fact that unlike with mere reproduction "*…composing (inventing) offers the greatest scope for choosing not only how but what to play or sing and in which temporal order.*"[23] And according to him, this creative freedom is one of the reasons for composing to be perceived as a teaching necessity, and not just an occasional activity "as and when time permits".

In relation to classroom composing, we must also emphasize the importance of active perception and its development. In a broader sense, the aim of classroom composing is to "*…open children's ears and educate the feelings.*"[24] In other words, teach children how to perceive their surrounding

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21 ZOUHAR, V. *Projekty Response, Klangnetze a Slyšet jinak ve výuce hudební výchovy. Komponování jako výuková metoda (Projects Response, Klangnetze and Different Hearing in teaching Music Education).* Habilitation lecture, which took place on 27.06.2005 at the Faculty of Education OU in Ostrava, manuscript 2005, p. 3.

22 BUNTING, T. The Place of Composing in the Music Curriculum. In SPURCE, G. (ed.) *Teaching Music in Secondary Schools*. London 2002, p. 166.

23 SWANWICK, K. *Teaching Music Musically*. London 1999, p. 55.

24 PAYNTER, J. *Hear and Now. An Introduction to Modern Music in Schools.* London 1972, p. 96.

sounds, as well as sounds that are absolutely new and non-traditional, with more attention. Play with them, transform them and experiment. Introduce them to new experiences. In the current world, where perceptions of visual character are of prevalence, active hearing perception is very important. It allows children to be more sensitive towards their surroundings, and possibly even take a critical stance on the ubiquitous musical smog.

Classroom composing can also be perceived as a way of teaching through problem-solving. This includes initial definition of a problem, testing the possible hypotheses, wording an original solution and publication of the results. Solving a defined problem is an important part of a learning process. A method of solving problematic situations thus directly influences the way children approach composition. Kaschub and Smith even call the composition process a *"research project"*, which leads *"…to the generation of new knowledge."*[25]

Creative procedures, which are used during classroom composing, are often identical to the procedures of contemporary composers. Thereby "*… it is not difficult to demonstrate the relationship between the classroom pieces and the work of our contemporary professional composers.*"[26]. This "insight from the inside" in consequence leads to better understanding of the 20th and 21st century's music, as well as to effective motivation – look at me, I can compose just like that real composer!

The main advantage of classroom composing in relation to education can be considered the fact how "barrier-free" it is, i.e. the possibility to actively involve all children regardless of their previous musical experience and skills. In other words, even a pupil, who under normal circumstances would be described as marginally gifted musically, is given an opportunity for his/her own creative expression. Such non-selective approach allows giving equal position to all children in a class – even children with special needs, or with physical or mental impairment.

The barrier-free concept is possible because the process of creation works with simple means – voice, one's own body, and traditional and non-traditional instruments. After 1945, the contents of the term music expanded to everything that makes sound. Therefore, even things that are primarily not musical instruments can be considered in this category.

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[25] KASCHUB, M. – SMITH, J. *Minds on Music. Composition for Creative and Critical Thinking*. Lanham 2009, p. 10.

[26] PAYNTER, J. *Hear and Now. An Introduction to Modern Music in Schools*. London 1972, p. 96.

Various materials, whether natural or synthetic, such as stones, leaves, wood, sand, water, glass, sheet metal, paper, plastic, rubber, cork, etc., can be used to create compositions. Even items of everyday use (also called *ready-mades*) provide a wide variety of sounds – tables, chairs, lamps, keys, plastic bottles, pencils, parts of clothing, plant pots, notebooks, water taps, doors, walls, etc., - and the list could continue. Another category is the so called non-instrument instruments, i.e. musical instruments that are newly made and original. Children can make these themselves, often with minimum cost and effort. In this case, ingenuity has no limits. Using traditional instruments is of no hindrance, but they should preferably be played in a non-traditional manner and thereby their sound qualities that were hidden so far can be discovered (playing piano strings, blowing into the holes of a recorder and so on). Last but not the least, we should not omit the possibility of involving Orff instrumentarium (accompanied by percussions of all kinds) or ethnic instruments from various parts of the world. The result of using all these sources of sound is that *"…the element of I know how – I do not know how is completely gone, and is replaced by a primarily creative 'I will try'"*[27] In this context, I fully agree with the opinion of Roy Cooper that children must be given full support in perceiving sound as a source of discovery, surprise, but most of all fun.

The most appropriate form of composition work appears to be activity in small groups, mostly containing 5 to 10 children, exceptionally up to 15. Collective work helps in mutual interaction between children, and thereby encourages creating new musical thoughts and ideas. Children are given the chance to react to one another and critically evaluate others as well as themselves. At the same time, composing in a group also gets rid off self-consciousness and inhibitions, and helps to acquire a healthy level of self-esteem. However, composing can also be done individually or within the whole class.

The most appropriate form of recording the resulting pieces from the perspective of elementary classroom composing appears to be graphic (also

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[27] MEDEK, I. Několik poznámek k hudební kreativitě (A Few Notes to Musical Creativity). In ZOUHAR, V. – MEDEK, I. – SYNEK, J. (ed.) *Different Hearing ´03. Tvořivost a improvizace v hudební výchově na zvláštních školách (Creativity and Improvization in Music Education at Special Schools), Miscellanea from the seminar focused on developing creativity in musical activites, held from 18. to 20. 11. 2003 at the Department of Music Education, Faculty of Education, Palacký University in Olomouc*. Brno 2004, p. 25.

known as invented) notations (or *idiosyncratic symbols*[28], in German as *graphische Notation* (*graphic notation*) or *musikalische Graphik (musical graphic art)*), which can be mastered without any previous theoretical preparation by all children without exception and regardless of age. They can be defined as the manner of recording musical ideas and images, using various symbols and pictures, letters, words or text passages, numbers, colour, but also empty space, etc. Traditional notation can also be used, although it should be done independently, out of the context of traditional notation (more like abstract symbols). Graphic recording does not necessarily have to be of linear (left to right) arrangement; it can acquire various forms and shapes.

The element of improvisation also plays a vital role in elementary creative efforts. It is a tool for creating a composition (which is constantly present throughout the entire process of its origination), enables for sounds to be discovered and "touched", and thereby at the same time opens the realm of new experience. In classroom composing, the elements of improvisation are constantly present even in the final form of the piece. As stated by Markéta Dvořáková, "*…in composition itself, there can be some more or less improvised units, but the skeleton of it is precisely defined. This means that the resulting piece can truly be considered a musical composition, although some of its fragments can differ from performance to performance. The main character of it, the course and the form, are fixed, unchangeable and recorded in a score.*"[29] Initial improvising and testing various sound possibilities can often smoothly transform into a final piece. The precise definition of a border between these two activities is very difficult especially in smaller children.

The personality of a teacher plays a key role in the process of classroom composing. It is he/she who provides children with an opportunity, inspiration, support, guidance as well as feedback throughout the entire process. However, unlike in the traditional concept of teaching, he/she does not adopt the superior position of a mentor, but more of a partner and a guide through the learning process. A teacher is no longer the only

[28] BARRETT, M. Invented Notations: A View of Young Children´s Musical Thinking. *Research Studies in Music Education*, Issue no. 8, July 1997, p. 2.

[29] DVOŘÁKOVÁ, M. Kompoziční aspekty projektu Slyšet jinak (Compositional Aspects of Different Hearing Project). In *Hudební improvizace (Musical Improvisation), Miscellanea from the national conference, 1–2 November 2005*. Prague 2005, p. 7.

source of knowledge; he/she is more an intermediary and a co-creator. A teacher becomes the main person to inspire and coordinate, he/she supports children in experimenting with sounds and provides them with new stimuli, and he/she gives advice, monitors and actively intervenes in the process if required. He/she steers and regulates the entire creative process, preferably through appropriate questions and comments. His/her instructions must always be precise and understandable. Teaching composition makes a teacher face new problems that otherwise he/she would not encounter in traditional form of teaching. And it is for this reason that he/she must exhibit certain degree of didactical flexibility and should not fear experimenting new methods of work (and thereby with the related some degree of uncertainty). A teacher must always be prepared to deal with unexpected and unforeseen situations that require flexible thinking, independence, ability to communicate, patience, being open to the new and yet unknown, and also show enthusiasm to learn throughout his/her professional career. With regard to appropriate determination of the compositional tasks and targets, he/she should know his pupils and know what to expect from them. He/she should also not lack the courage to possibly engage in the creative process. It is apparent from the above that composing requires for a teacher to have many different abilities and skills, resulting from the complexity of such creative work.

In the composing process, evaluation is ever-present in the form of questions and comments, and its primary goal is to encourage interest and enjoyment in listening and creating music. It can be seen as a certain type of communication and interaction between a teacher and his/her pupils.

It is beyond any doubt that the inclusion of composing in music education lessons brings many positive points. As it was already mentioned, it is easier to introduce children to contemporary music through this process; they can then grasp the creative processes that makes it much easier for them to accept (this hypothesis was verified through a study by Archibeque[30] or Václav Drábek[31]). Children then perceive contemporary music in a much better light. In this respect, an interesting fact is stated by Swanwick: "*For example, in discussion with Steve Reich following the rehearsal of his* City Life*, the composer was asked how much he was paid to*

[30] ARCHIBEQUE, Ch. P. Developing a Taste for Contemporary Music. *Journal of Research in Music Education,* 1966, Issue no. 2, p. 142–147.

[31] DRÁBEK, V. Tvořivost a integrace v receptivní hudební výchově (Creativity and Integration in Receptive Music Education). *Studia Paedagogica 23*, Prague 1998.

produce the piece. His answer left the students in no doubt that composers were real people and that composing could really be a lucrative activity, though one involving some hard work. It itself was a revelation."[32]

However, classroom composing also provides plenty of room for developing other music as well as non-music abilities and skills. Working in a group always requires certain degree of cooperation and communication. Children are made aware of the responsibility for their own work as well as for the work of a group as a whole. Composing activates and increases motivation (towards completion of a given task and its successful implementation), but also towards other musical activities. Michele Kaschub also realizes the importance of motivation when she states that "…*perhaps there is no more powerful motivational tool to offer students than the opportunity to create music that is uniquely their own*."[33] Work with composing forces pupils to seek constructive and practical solutions to various problems and thereby, develops critical thinking. It requires promptness and perseverance, but also self-confidence, self-criticism, tolerance and respect for others. It provides new experience and feelings (e.g. happiness from one's own success), which aids in developing personality as a whole. Strengthening social ties within a team is no less important, classmates have the opportunity to know one another better and unite. All such lessons learned then provide positive reflection within other subjects.

Children simply enjoy creative work with sounds (and with other classmates in a group). This is illustrated by the words of one German pupil. „*Ich habe bei mir selbst und auch bei meinen Klassenkameraden bemerkt, dass uns ein Schultag, an dem wir Musik hatten, irgendwie mehr Spaß gemacht hat als andere Schultage*."[34] (I noticed that my classmates and I enjoyed more the school days with music lessons than any of the other school days). To the children, music suddenly becomes something they can create themselves and therefore, they develop a certain affinity for it. And if this affinity for music is created this way, it is much stronger and more lasting than one built on mere theoretical knowledge of music. Kaschub

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[32] SWANWICK, K. *Teaching Music Musically*. London 1999, p. 98.

[33] KASCHUB, M. Exercising the Musical Imagination. *Music Educators Journal*, November 1997, p. 26.

[34] HARTMANN, W. „…dürfen wir heute wieder was erfinden?". *Musik und Bildung,* Dezember 1984, p. 803.) „…Can We again Invent Anything Today?"*Music and Education*, December 1984).

and Smith do not only apply this concept to music, but to the entire children's world. "*The act of composing challenges children to consider their understanding of the world in new ways*"[35] According to them, composing supports a changed perspective on the world around us (in the sense of a more sensitive perception), but also a change in the perspective on oneself. "*The act of composing is a process that allows the child to grow, discover, and create him- or herself through artistic and meaningful engagement with sounds*".[36]

Naturally, classroom composing is not aimed at training professional composers, but rather people who can appreciate the artistic work of others, people with their own opinion and taste, who are not mere passive consumers of music. Classroom composing opens up new and unexpected horizons and at the same time, also enables for disadvantaged children to take active part. Therefore, let us not be afraid to compose with children. It takes us one step closer to educating a self-confident person and a tolerant listener.

Minimal Music

Movement in music, which is now called minimalism[37], began to surface around 1960 in the United States. It developed in close conjunction with other artistic fields, especially with visual arts, but similar features can also be found in literature, film and dance. And it was from the area of art (*minimal art*) where the actual name for this movement came (the term minimalism was already used here in 1929 to identify work by John

[35] KASCHUB, M. – SMITH, J. *Minds on Music. Composition for Creative and Critical Thinking*. Lanham 2009, p. 5.

[36] KASCHUB, M. – SMITH, J. *Minds on Music. Composition for Creative and Critical Thinking*. Lanham 2009, p. 7.

[37] Apart from the most frequently used terms of minimal music and minimalism, literature also uses a whole range of other terms (synonyms), such as repetitive music, systemic music, pulse music, pattern music, trance music, process music, modular music, hypnotic music or meditative music. However, each one of these terms only describes one of the many characters of minimalism, and they are therefore difficult to use on a general level.

Graham[38]). However, composers from the minimal music circle were mostly impacted by the artistic movement *Fluxus*[39].

"After the war, minimalism can be perceived as a first trend, which is not seeking new sounds but restores the contents of traditional resources, which in Europe are even considered profane."[40] It represents postmodern reaction to serial models of modernism, represented by Pierre Boulez, Karlheinz Stockhausen or Milton Babbit. Young composers strive to define against them, and they therefore seek their own artistic ways. They even criticised serialism and considered it to be a musical and cultural error, and a negative model. Philip Glass even spoke "*…of a wasteland, dominated by these maniacs, these creeps, who were trying to make everyone write this crazy creepy music.*"[41] Minimalism also stands against Cage's indeterminism and aleatorics (although it originated from a circle of composers around Cage), and it is well-thought out composition and determinism, which are laid on the other side of imaginary scales. The element of chance is very strongly restricted (although not completely eliminated). Even Cage himself takes a critical reserved attitude towards minimal music. Although as remarked by Keith Potter, "*…all four composers share with Cage and other experimentalists the belief that their music should somehow go beyond what their own imaginations were inherently capable of inventing*,"[42] Wim Mertens considers repetitive music to be the final stage "*…of anti-dialectic movement that has shaped European avant-garde music since Schönberg,*

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38 LINKE, U. *Minimal Music. Dimensionen eines Begriffs*. Essen 1997, p. 44.

39 *Fluxus* movement, as an international network of artists, especially influenced the art scene during the 1960's and the first half of the 1970's. It built on the legacy of Dada and the work of Marcel Duchamp, and sought brand new forms of art. The philosophy of this movement was the close relation between art and everyday life and their mutual connection. It stood in opposition to the traditional "high art". It valued simplicity against complexity, anti-commercialism, happenings and performances, multimedia projects, irony and humour. The Fluxus movement includes personalities such as George Maciunas, George Brecht, Nam June Paik, Joseph Beuys, Yoko Ono, but also John Cage, and from Czech artists, Milan Knížák was close to the movement at the given time.

40 KOFROŇ, P. *Tón ne! Čítanka pro ty, kdo pochybují o smyslu nové hudby (No Tone! A reader for those who doubt the purpose of new music)*. Brno 1998, p. 46.

41 POTTER, K. Four Musical Minimalists. La Monte Young, Terry Riley, Steve Reich, Philip Glass. Cambridge 2000, p. 10.

42 POTTER, K. *Four Musical Minimalists. La Monte Young, Terry Riley, Steve Reich, Philip Glass.* Cambridge 2000, p. 6.

a movement that reached its culmination with John Cage".[43] Minimalism can therefore also be seen as smooth continuation of music development in concurrence to the previous tendencies. "*No matter how consistently composers of repetitive music have spoken out against the intellectualism of the avant-garde (which for Reich, includes Webern and Cage), they cannot escape its influence*".[44] So, the new stems from the old and it defines itself against it. And as Michael Nyman adds "*…the origins of this minimal process music lie in serialism*".[45] So, there is developmental continuity between minimalism and the previous musical trends (avant-garde), although it is radically denied soon.

Four American composers are considered to be the main representatives of minimal music – La Monte Young (1935), Terry Riley (1936), Steve Reich (1936) and Philip Glass (1937). These authors themselves take a reserved approach (apart from Young) to the qualification of their music and consider it rather simplistic. The work of these four leading minimalists was eventually followed by many other authors in America and in Europe, who to a greater or lesser degree took over the minimalistic principles and adapted them to their own artistic needs. They can be considered as the second generation of minimalists, post-minimalists or recipients of minimalisms (although all of these terms are just orientational). They are John Adams, Charlemagne Palestine, Michael Nyman, Gavin Bryars, Howard Skempton, Louis Andriessen, Peter Michael Hammel, Zoltán Jeney or Arvo Pärt, who gets close to minimalism with his subtle style called *tintinnabuli*.

So what are the main features and characteristic procedures for composing minimal music? The most significant feature can be considered extreme reduction of one or more parameters of a piece (initial tonal material, rhythm, timbre of sound, etc.). Such reduction to basic elements of music (sound, tone) is an intellectual return to Anton Webern (however, in a somewhat different manner). Even Michael Nyman offers comparison to this author: "*In Webern one perceives sameness out of (apparent) variety; while in Young´s, Glass´s, or Reich´s music one perceives variety out of (apparent) sameness.*"[46]

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43 MERTENS, W. *American Minimal Music.* London 1983, p. 87.

44 MERTENS, W. *American Minimal Music*. London 1983, p. 87.

45 NYMAN, M. *Experimental Music. Cage and Beyond*. Cambridge 1974, p. 119.

46 BERNARD, J. W. The Minimalist Aesthetic in the Plastic Arts and in Music. *Perspectives of New Music*, Winter 1993, p. 113.

Another fundamental feature of minimalism is the excessive use of repetitions and ostinato (with the exception of La Monte Young, for whom continuity of sound is typical). Naturally, this is not the first case of maximum use of repetitions in music (we can remember for example *Vexations* by Erik Satie or Ravel's *Bolero*), but it is the first time it became a truly significant style-forming element, which is almost permanently present in the work of several authors. Repetitions can be understood as a means of maximum control – determinism. At the same time, it is absolutely elemental and a simple composing process, the use of which brings some very interesting results when it comes to sound (even in connection with the creation of psychoacoustic effect).

Working with the so-called patterns is also characteristic. Patterns in this sense stand for small (rhythmical or melodic) motivic cells or formulas, which form the foundation for composing and applied procedures (repetitions, gradual transformations, variations). This procedure was used and developed by Terry Riley in his piece *In C*.

When it comes to compositional principles, the so-called phase shifting (*Phasenverschiebung*), the creator of which is considered to be Steve Reich, plays an important role. Phase shifting can be gradual or sudden. Gradual phase shifting is created by overlapping of two identical voices, while the primo flows in a different tempo than the other. A sudden shift is achieved by making one voice shorter or longer for a specific rhythmic value. In both cases, this results in continuous mutual shifting of both voices, which, after a certain time, return to their common initial state.

Frequent compositional techniques are also addition, subtraction and substitution, i.e. gradual adding or subtracting of tones, or substituting rests with tones and vice versa. These procedures are typical for the work of Steve Reich and Philip Glass, another beautiful example is also a piece by Frederic Rzewski *Les Moutons de Panurge* (1969).

La Monte Young specialises in experimenting with drones and their impact on listener's perception.

Minimalism is also characterised by the absence of functional harmony (tonal centre, cadence) and influences of non-European music and jazz.

Different work with time, which plays a significant if not fundamental role (as means of presentation), is typical for minimalism. Minimal music lacks dramatic structure and contrasts. It has no peak, no development in the traditional dialectic sense, and it does not even have to have a clear beginning and an end (the pieces often end quite abruptly and

unexpectedly). Despite all this, one could hardly call it static. Music only exists as a sound event here and now. Its existence can be considered as not entirely objective; free from all subjective influences of a listener. Music exists on its own – "an sich". In this context, Petr Kofroň characterizes minimalism as *permanent presence,* music, which has no horizontal time dimension.[47]

This is also related to a different way of listening to minimal music – even in relation to originating psychoacoustic effect (Reich calls them *resulting patterns*). Perception is strongly individualised here and it presents an integral creative part of every work (process). Thus, a listener himself participates in the construction of a piece, which for that reason can acquire an endless number of variants.

Some features of minimal music are very close to popular music, especially rock, techno, house music and ambient, for which the element of repetition and continuous pulsation is typical. Composers lead their own ensembles for which they write music (Young – *The Theatre of Eternal Music*, Glass – *The Philip Glass Ensemble*, Reich – *Steve Reich and Musicians*, Nyman – *Michael Nyman Band*), and they are therefore the authors and interpreters in one person. They show affection for world music, jazz and electronic music. Philip Glass and Michael Nyman became renowned authors of film music. On the other hand, minimalism influenced many artists from the pop scene, especially Brian Eno and David Bowie.

The above mentioned compositional principles and position of minimalism at the intersection of classical and popular music forms a prerequisite for its possible use in various creative activities, which are part of music education at schools, especially classroom composing. Individual techniques are primarily simple, therefore, easy to understand, and in a simplified version also easy to imitate, and they can be applied to simple rhythmic or melodic models.

Minimalism goes beyond the boundaries of artistic disciplines (visual arts, film, and literature) and thereby offers room for other activities in this direction. Many of its characteristic features are known to children and they feel close to them – regular rhythm, fast tempo, tonality and consonance. On the other hand, static harmony, continuous repetitions, processuality, psychoacoustic effect or working with time – is what is new to them.

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[47] KOFROŇ, P. *Tón ne! Čítanka pro ty, kdo pochybují o smyslu nové hudby (No Tone! A reader for those who doubt the purpose of new music)*. Brno 1998, p. 50.

Composition Projects Based on the Principles of Minimal Music

Projects that work with compositional principles of minimal music are of very diverse characters – some are very brief, some are extensive (stipulated for more long-term work), some work with written or spoken text and some utilise computers and recording equipment. They contain various degrees of productive, reproductive and improvisational activities.

Projects can be divided into two groups, according to topics – institutes of general education and music institutes. The first group includes projects, primary stipulated for use within music education (at various levels and types of schools), the authors of which are composers, music educationists and active teachers. The second group includes projects, the establishment of which was initiated and guided by significant music institutes (orchestras and opera houses) as part of their animation programmes. These projects always strive to introduce a specific reference piece, their character is more complex and they count on pedagogical support of professional musicians and animators.

Petr Kofroň regards minimalism to be a universal creative principle. *"The principle of minimalism is actually very simple and easy to imitate: it is a repetitive technique. Minimalism thereby became (next to dodecaphony and indeterminism) a candidate for a universal music principle that everybody could create with."*[48] A question, as to what extent are such positive prerequisites transferable to actual use, can be answered on the example of several specific selected projects and exercises (from the first group).

Diana Blom (born 1947) is a composer, a pianist and a cembalist, originally from New Zealand, but currently living in Australia where she works at the University of Western Sydney. As groundwork for research for her dissertation thesis (focused on approaches and strategies of teachers to composing in relation to minimal music for children of various ages), she created a set of compositional exercises, called *The Pulse Music Album*[49]. This album is divided into eight thematic chapters. Six of them

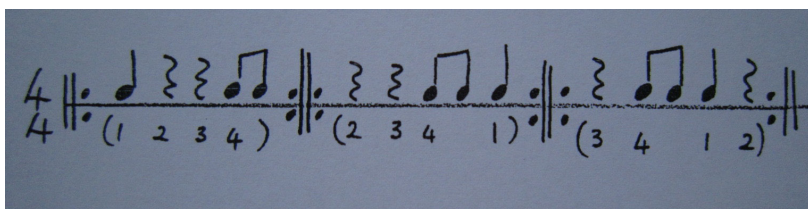
[48] KOFROŇ, P. *Tón ne! Čítanka pro ty, kdo pochybují o smyslu nové hudby (No Tone! A reader for those who doubt the purpose of new music)*. Brno 1998, p. 51.

[49] BLOM, D. *Minimal Music: Roles and Approaches of Teachers Engaging Students with a Contemporary Art Music through Composing Activities. Dissertation thesis*, Sydney 2001. Appendix for Chapter Five, 5B, p. 16-36. Available online at http://adt.caul.edu.au.

are focused on the most significant minimalist compositional procedures, such as phase shifting, additive and subtractive rhythmic constructions, isorhythmic model overlapping, patterns established by repeating chords, work with patterns according to Riley's *In C* and canons. The last two sections are devoted to African rhythms (in relation to music of Ewe tribe in Ghana, which influenced Steve Reich's work) and gamelan (in this case Malaysian, the structure of which, according to the author, is much simpler than Balinese or Indonesian gamelan). The exercises are for example as follows:

Phase Shifting (Reich)[50]

The first compositional principle, which the album offers to be processed, is phase shifting. The basis of this is a rhythmic pattern, here in quadruple time. First, a basic link is made out of it through multiple repetitions. The second layer is then derived (with the application of phase shifting), the principle being that in each following measure (which is always repeated several times), the first note shifts to the end of the measure. This process is repeated until the initial rhythmic model is reached. "*The second measure is constructed by placing the first note at the end of the measure and moving beats 2, 3 and 4 along one place to the left. Continue this process with the following measures until the original measure is re-established.*"

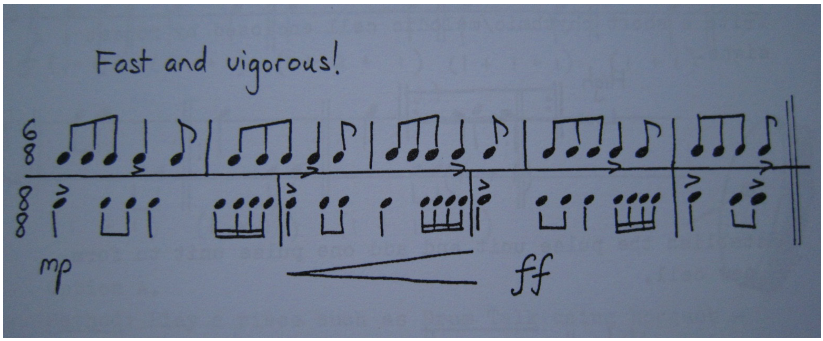


Phase Shifting – secondo with applied phase shifting.

[50] BLOM, D. Minimal Music: *Roles and Approaches of Teachers Engaging Students with a Contemporary Art Music through Composing Activities*. Dissertation thesis, Sydney 2001. Appendix for Chapter Five, 5B, s. 18–20. Available online at http://adt.caul.edu.au. Use of all illustrations printed herein has been approved by the author.

Phase Shifting Melodies (Glass, Shrapnel)[51]

The second exercise also deals with phase shifting, but this time embedded in static harmony and created by two (or more) layers, which are not the same in length. The exercise goes: "*Write a phrase of music of 'x' measures length. Write a second phrase of music (within the same harmonic framework if tuned instruments are to be used) with a different number of bars from the first phrase, and play the two phrases together, beginning at the same time and repeating each phrase until the original starting point is reached or until you wish to stop the piece.*" Naturally, the same principle cannot only be used with melodic but also with rhythmic (if untuned or other percussions are used) voices.



Phase Shifting Melodies – two constantly repeated patterns with a different meter.

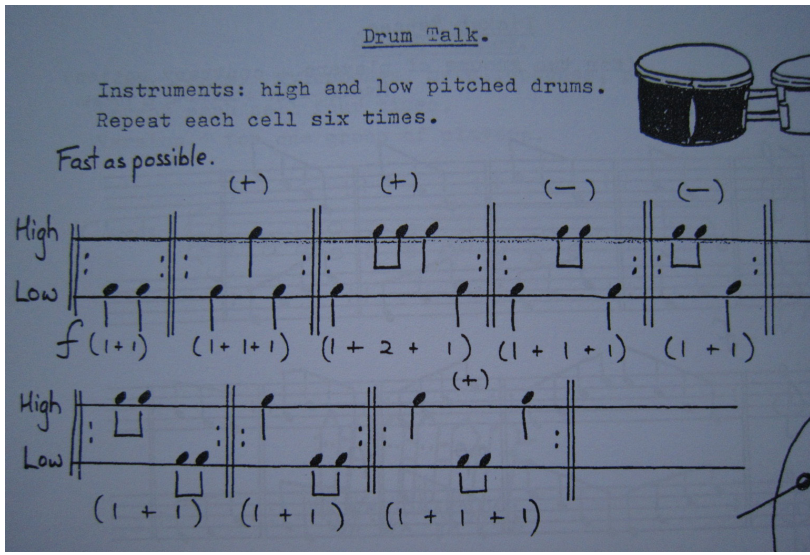
Add and Subtract (Glass)[52]

The next section is devoted to the principles of additive and subtractive rhythms, following up on Philip Glass, using at least two different pitches or series of spread chords. The basis is formed by one short rhythmic or melodic pattern (for example two quarter notes of the same pitch) repeated

[51] BLOM, D. *Minimal Music: Roles and Approaches of Teachers Engaging Students with a Contemporary Art Music through Composing Activities*. Dissertation thesis, Sydney 2001. Appendix for Chapter Five, 5B, p. 20–21. Available online at http://adt.caul.edu.au.

[52] BLOM, D. *Minimal Music: Roles and Approaches of Teachers Engaging Students with a Contemporary Art Music through Composing Activities*. Dissertation thesis, Sydney 2001. Appendix for Chapter Five, 5B, p. 22–24. Available online na http://adt.caul.edu.au.

several times. Following this "*…establish the pulse unit and add one pulse unit to form a new cell. For the following cells, either add or subtract one pulse unit. Repeat each cell a prearranged number of times. If using untuned percussion, (e.g. drums) use high-medium-low pitches. If using tuned instruments, choose a pattern of related chords which can then be repeated as often as required.* […] *All players start and end at the same time.*" Exercise of this type offer endless solution variants.



Add and Subtract – adding and subtracting tones in two basic pitches.

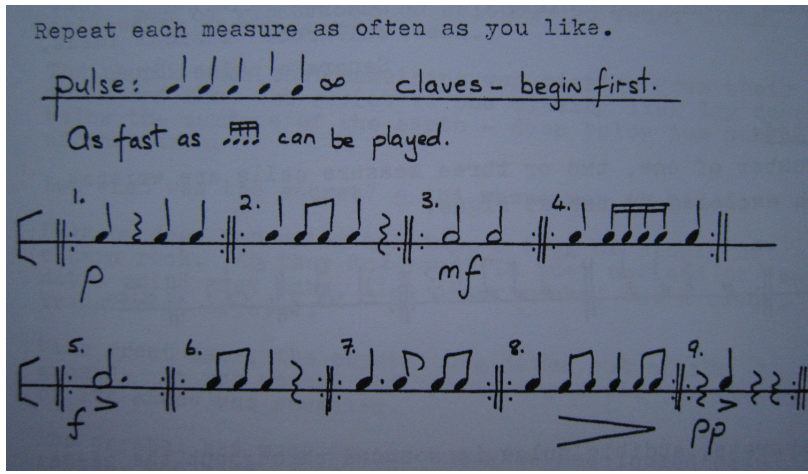
Music Waving (Riley)53

In her project album, the author did not omit to include themes arising from a compositional principle used for the first time by Terry Riley in his famous piece *In C*. Even here, the basis is creating a number of various patterns and their gradual repetition at the player's will.

"*A number of one, two or three measure cells are written, each enclosed by repeat signs.* […] *Each player enters at will, beginning with cell one, repeating*

53 BLOM, D. *Minimal Music: Roles and Approaches of Teachers Engaging Students with a Contemporary Art Music through Composing Activities.* Dissertation thesis, Sydney 2001. Appendix for Chapter Five, 5B, p. 26–28. Available online at http://adt.caul.edu.au.

it as often as he/she wishes (or a specified number of times, if preferred) then moving onto the next cell. […] *Continue in this manner, letting one's ear be the guide as to when to move to the next cell. The piece is finished when all players are on the last cell.*" Individual patterns can be based not only on rhythm, but also on the chords or functional harmony. Even other compositional principles stated herein, such as phase shifting, can be included.



Music Waving – the basic pulse and nine possible patterns.

In the introduction of *The Pulse Music Album*, Diana Blom points out that a teacher should not proceed in the exact sequence from one task to another, but should utilise the whole file as a suggestion for free selection of ideas and activities. Exercises are not to be taken as strictly "ready-made", but only as a basic model for possible modifications and necessary adjustments accoding to the given requirements. There should also be room for children's own ideas from the fields of music, rhythm and harmony. The entire *Pulse Music Album* is unique in the sense that it includes all basic compositional principles for minimalism, including relations to non-European music. It offers inspiration for children of all age groups and levels of music education – exercises can vary from very simple to complex, from short to more time consuming. It is also very well-arranged and comprehensible with enough specific compositional examples. It is, therefore, delightful that Diana Blom is preparing to publish its extended and slightly revised version.

Ulli Götte (born 1954) is a leading German composer, pianist, musicologist and music educationist, who is inspired by minimal music in his own compositional work. According to his opinion, minimal music is suitable for first introduction to contemporary music, as it has certain qualities, which *„…sie als einen günstigen Repräsentanten neuer Musik im Unterricht erscheinen lassen: Sie besitzt Affinitäten zur Jazz- und Rockmusik, sie erwuchs aus der Idee der Nachvollziehbarkeit musikalischer Strukturen, sie macht Elementarisierung und Vereinfachung, wesentliche pädagogische Prinzipien bei der Vermittlung (nicht nur) neuer Musik, unnötig und sie ist praktisch erfahrbar, also 'spielbar'".*[54] *"…allow minimal amount of music to appear as an appropriate representative of new music in teaching: it has affinities to jazz and rock music, it originates from the idea of feasibility of musical structures and it makes unnecessary elementarization and simplification, which are the basic pedagogical principals of (not only) explanation."*

Ulli Götte understands classroom composing to be one of the ways to introduce children to minimal music and its principles. It is, according to him, linked with certain risk, which consists in a seeming simplicity of this musical trend. As "*…obwohl kompositorische Grundelemente der Minimal Music, wie Einfachheit, Reduktion etc. unmittelbar ästhetisch konkret werden, ist die Qualität einer minimalistischen Komposition, die ja durchaus komplex sein kann, nicht a priori mit Kriterien der Einfachheit messbar."*[55] "…although compositional basic elements of minimal music, i.e. simplicity, reduction etc., become concrete immediately in aesthetic sense, the quality of a minimalist composition, which can be quite complex, is not a priori measurable by means of criteria of simplicity."

Regardless of this he believes that this music is suitable as a starting point for first compositional efforts.

However, the selection of a starting material is important. It should be significantly reduced in order to simplify creative work. *„Die Vielfalt des musikalischen Materials wirkt oft erdrückend, behindernd oder gar blockierend. Es scheint daher ratsam, mit sehr reduziertem Material das eigene musikalische Erfinden zu starten."*[56] "*The variety of the musical*

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54 GÖTTE, U. *Minimal Music. Geschichte – Ästhetik – Umfeld (History – Aesthetics – Environment)*. Wilhelmshaven 2000, p. 273.

55 GÖTTE, U. *Minimal Music. Musikpraxis in der Schule (Music Practice at School)*. Kassel 2002, p. 52.

56 GÖTTE, U. *Minimal Music. Geschichte – Ästhetik – Umfeld (History – Aesthetics – Environment)*. Wilhelmshaven 2000, p. 278.

material has often a suppressive, damping or even blocking effect. Therefore it is reasonable to start one's own musical invention with very reduced material." To start with, basic rhythmic training is required through simple games and exercises resulting from compositional principles of minimal music (he suggests e.g. *Namensspiel*, *Metrum-Spiel* or *Ostinato-Spiel*[57]).

Unlike his own compositions (which also include simplified versions of Reich's or Riley's pieces), stipulated for direct interpretation by the students, compositional exercises are even suitable for beginners and the less experienced. They focus on the principle of reducing musical material, on the gradual development of a theme (by substituting rests with tones), on "graduality in music" (i.e. realising, perceiving changes of sound in time), and they use the method of phase shifting or canon just like in Riley's *In C.* The assignment is not over extensive, so it can be quoted in full here:

Reduktion:
*Bilde eine Melodie mit nur drei Tönen. Führe ganz allmählich einen Ton nach dem anderen ein. Denke immer daran, dass auch Pausen zur Musik gehören. Wie aufmerksam wird ein neuer Ton wahrgenommen, wenn mehrere Takte lang nur ein einzelner Ton erklungen ist? Mögliche Tonvorräte: (*c, d, e*), (*d, f, g*), (*c, cis, d*).*

Komponiere Rhythmen mit ausschließlich Viertel- und Achtelnoten. Forme erst eine Stimme, füge später eine zweite Stimme und schließlich noch eine dritte dazu. Verwende auch Pausen! Beachte Instrumentation und Dynamik.

Reduction:
Compose a melody with only three tones. Gradually add tones one by one. Always take into consideration that even breaks belong to music. How carefully is a new tone perceived, when during several times only one tone sounds? Possible tone reserves:

Compose rhythms only with crotchet and quaver notes. First create one voice, then add the second voice and finally the third one. Use breaks also! Be mindful of the instrumentation and dynamics.

[57] GÖTTE, U. *Minimal Music. Musikpraxis in der Schule*. Kassel 2002, p. 54.

Sukzessiver Modellaufbau:
Erfinde (oder übernimm) eine einfache Melodie. Lass zunächst nur einen Ton der Melodie erklingen – der Rest wird durch Pausen ersetzt. Bringe die Melodie nach dem Prinzip 'Ersetzen der Pausen durch Töne' allmählich zu ihrer Gestalt. Beobachte, wie spät man erst die zu Grunde liegende Melodie erkennt!

Gradual Model Formation:
Invent (or take) a simple melody. First allow the sounding of only one tone of the melody – remaining tones are substituted with breaks. Create the melody according to the principle"substitution of the rests with tones"gradually. Observe when the initial melody is recognized!

Allmählichkeit:
Bilde eine Reihe dreistimmiger Akkorde, von denen sich je zwei benachbarte Akkorde in nur einem Ton unterscheiden. Ihr könnt euch die Aufgabe in Dreiergruppen aufteilen: A betreut die erste, B die zweite und C die dritte Stimme. Wechselt euch gleichmäßig ab (oder lasst einen Würfel entscheiden); jeder bestimmt nur in Bezug auf seine Stimme, welcher neue Ton eingeführt werden soll.

Versuche ein Stück zu komponieren, bei dem eine Zeitlang nur ein Ton erklingt, dann ein zweiter hinzugefügt wird usw., bis schließlich alle Töne (einer Tonleiter oder des chromatischen Totals) verwendet worden sind. Tipp: Man beginne mit dem d*, verwende dann die Oberquinte* a*, dann die Unterquinte* g*, dann nach diesem Muster weiter* e, c, h, f*… Jeder neue Ton tritt ergänzend (und nicht verdrängend) hinzu.*

Graduality:
Create a three-part series of chords, in which two neighbouring chords always differ from each other only by one tone. You can divide the task among groups of 3 pupils: A cares for the first voice, B for the second one and C for the third one. Take turns equally (or roll dice to decide); everybody can define which new tone should be added only with regard to his voice.

Try to compose a piece, in which only one tone sounds for some time, then a second one is added etc., until all tones (of one gamut or of a chromatical total) are used finally. Tip:begin with d*, then use upper quint* a *and then low quint* g*, then according to this pattern* e,c, h, f*…Every new tone is added as a supplement (without suppressing the others).*

Phasenverschiebung:
Nehmt (oder erfindet) eine kleine Melodie. Spielt diese Melodie zunächst gemeinsam. Erweitert die Melodie einer Stimme um eine Zählzeit. Spielt die beiden Gestalten so lange, bis ihr die Ausgangsposition wieder erreicht habt. Versucht dies auch mit zwei unterschiedlichen Melodien.“[58]

Phase Shifting:
Take (or invent) a small melody. First play the melody together. Extend the melody of one voice by one beat Play both the forms until you achieve your initial position again.Try it also with two different melodies.”[58]

Kanon-Prozesse:
Schließlich biete die Spielidee von In C*, einen kanonartigen Prozess zu entfalten auf der Basis verschiedener, beliebig oft wiederholter Muster, ein kompositorisches Einstiegsmodell, das durchaus individuell ausgeprägt sein kann.“*[59]

Canon Processes:
Finally offer a play idea from In C *to bring out a canon process on the basis of various patterns repeated with optional frequency –a compositional introductory model which can be expressed quite individually”*[59]

Projects are primarily focused on developing perception (the course of music flow in time and its gradual transformation) and rhythm, which are probably the two most distinct features of minimal music. It is clear from these that Ulli Götte understands composing in the rather traditional sense – based on the knowledge of notation – and he probably also does not expect using any other than traditional musical instruments. Despite these specifics, this author brings a number of valuable suggestions for working with children without any major musical experiences – the outlined procedures can be modified and adjusted according to the specific needs and requirements.

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[58] GÖTTE, U. Schön einfach – einfach schön. Spielen und Komponieren im Sinne der Minimal Music. *Klasse Musik* (Pretty Simple – Simply Pretty. Playing and Composing in Accordance with *Minimal Music*. Music Classroom), 2005, Issue no. 1, p. 39.

[59] GÖTTE, U. *Minimal Music. Musikpraxis in der Schule (Music Practice at School)*. Kassel 2002, p. 104.

Professor **Ortwin Nimczik** (1956) is one of the most distinct personalities of German music education of today. He is intensely committed to making contemporary music close to children through various creative activities. As part of these long-term efforts for making experimental music more accessible, he also brings a number of specific practical ideas. Two of these projects are related to the topic of minimal music, which, according to his opinion *„…bietet zudem durch die Einfachheit ihrer Strukturen gute Möglichkeiten für musikalische Gestaltungsarbeit im Unterricht*", but at the same time *„…dürfen freilich nicht die Schwierigkeiten im Detail unterschätzt werden."*[60] (*„…offers also good possibilities for musical creative work in teaching thanks to the simplicity of its structures*",but at the same time *„the difficulties in detail must not be underestimated."*[60])

The first project titled *Einfach zählen*[61] (*Simply Count*) focuses on the compositional principle of phase shifting (Nimczik considers it to be a phenomena and a centre trait of minimal music). However, mastering this principle to perfection is not easy. Practicing it requires particular care and intense work. In order to introduce and understand phase shifting, the author offers a structurally simple game with words (or numbers): *„Zunächst suchen sich alle Mitwirkende eine ein- oder zwei- oder drei- … silbige Zahl aus. Einer beginnt und setzt damit den Grundpuls und das Tempo. Nacheinander kommen die weiteren Spieler hinzu, die Zahlen werden silbenweise im gleichen Puls gesprochen (ein Schlag = eine Silbe).*" (*First all participants choose a figure of one syllable, two syllables or three syllables. One starts and determines the basic pulse and tempo. One by one the other players join the game, they pronounce the figures by syllables in the same pulse (one beat = one syllable).*" The first part of the task can be expressed as follows:

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60 NIMCZIK, O. Einfach zählen!. Spielerische Annäherungen an das Phänomen der Phasenverschiebung. *Musik und Bildung* (Simply count! Playful Approaches to the Phenomena of Phase Shifting. *Music and Education*), 2000, Issue no. 3, p. 47.

61 All following quotes are from NIMCZIK, O. Einfach zählen!. Spielerische Annäherungen an das Phänomen der Phasenverschiebung. *Musik und Bildung (*Simply Count! /Playful Approaches to the Phenomena of Phase Shifting. *Music and Education)*, 2000, Issue no. 3, p. 47–49.

null	null	null	null	null	null	null	null	null
sie	ben	sie	ben	sie	ben	sie	ben	sie
hun	dert	elf	hun	dert	elf	hun	dert	elf
ein	und	neun	zig	ein	und	neun	zig	ein
vier	tau	send	sieb	zehn	vier	tau	send	sieb

atd.

Eventually, individual numbers can be interlined with rests – for a period of one beat, or they can gradually be extended to several beats:

null	𝄽	null	𝄽	null	𝄽	null	𝄽	null	𝄽	null
sie	ben	𝄽	sie	ben	𝄽	sie	ben	𝄽	sie	ben
hun	dert	elf	𝄽	hun	dert	elf	𝄽	hun	dert	elf
ein	und	neun	zig	𝄽	ein	und	neun	zig	𝄽	ein
vier	tau	send	sieb	zehn	𝄽	vier	tau	send	sieb	zehn

atd.

null	𝄽	null	𝄽	𝄽	null	𝄽	𝄽	𝄽	null	𝄽	𝄽
sie	ben	𝄽	sie	ben	𝄽	𝄽	sie	ben	𝄽	𝄽	𝄽
hun	dert	elf	𝄽	hun	dert	elf	𝄽	𝄽	hun	dert	elf
ein	und	neun	zig	𝄽	ein	und	neun	zig	𝄽	𝄽	ein
vier	tau	send	sieb	zehn	𝄽	vier	tau	send	sieb	zehn	𝄽

atd.

Based on these exercises then in the second phase "*…können nun individuelle Tempoveränderungen im Sinne allmählicher Phasenverschiebungen erprobt werden.*" (*„… indivudual tempo changes can be tried in accordance with gradual phase shifting.„)*

First in small groups of 3 to 5 musicians. "*Ein Spieler beginnt und exponiert Puls bzw. Tempo, die anderen setzen nacheinander im gleichen Tempo ein. Nach einer Weile gemeinsamen Sprechens beschleunigen 1 bis 2 Spieler ganz allmählich und kommen dann wieder auf das Ausgangstempo zurück (um das Stabilbleiben des Ausgangstempos zu gewährleisten, können*

die Spieler Lichtimpulse eines Metronoms zu Hilfe nehmen). Im Weiteren können Überlagerungen von Beschleunigung und Verlangsamung u. a. m. erarbeitet werden." („*One player starts and determines pulse or tempo, the others begin one by one in the same tempo. After some time common speaking is phased out and 1 or 2 players speed up quite gradually and then return again to initial tempo (in order to maintain initial tempo, the players can use light pulses of a metronome). In addition, it is possible to elaborate, among others, overlays of accelerationand deceleration*".)

The above mentioned exercises do not have to be only spoken, but also sung or possibly supplemented with or replaced by musical instruments. Ortwin Nimczik also points out that by mere utterance of the numbers, typical psychoacoustic effects emerge. It is, therefore, appropriate for children to be divided into two groups – one, who is "speaking", and the other "listening" – and to be fully perceiving the new audio experience.

Although this project focuses on practicing of certain skills (rhythm, maintaining independence of voice, etc.), rather than on creating composition based on one's own invention, it is a very interesting idea of how to utilise the phase shifting principle in a simple manner. At the same time, nothing is preventing the conversion of the exercise into Czech language or possibly creating other modifications.

The second project is called *Musik mit einem Ton?*[62] (*Music with one tone?)* and focuses on creating original compositions based on a single tone. The piece by György Ligeti, *Musica Ricercata Nr. 1* is the source of inspiration for work here. And although Ligeti is not included amongst composers, who are known as the minimalists, the first piece from this piano cycle carries evident features of minimalism. The initial musical material is reduced to the minimum here – a single tone.

In this case, the assignment of a compositional exercise is brief: „*Legt einen Ton fest und versucht,* […] *aus euren Ideen verschiedene kleine Stücke zu erfinden und gemeinsam zu spielen*." („*Define one tone and try*, […] *to invent various small pieces from your ideas and to play them together.*") Naturally, this idea is not new, R. Murray Schafer or John Paynter already worked with it before. However with Nimczik, it is in relation to a specific contemporary composition. The task can be somewhat limited to start with:

[62] All following quotes from NIMCZIK, O. Musik mit einem Ton?. Zur unterrichtlichen Behandlung von Ligetis „Musica Ricercata, Nr. 1". *Musik und Bildung* (Music with one Tone? How to Deal with „Musica Ricercata, No. 1 by Ligelis in Teaching", *Music and Education*), 1991, Issue no. 4, p. 24–27.

"*Welche Möglichkeiten gibt es, bei beigehaltener Tonhöhe, einen Ton klanglich zu verändern?"("Which possibilities are available for changing the sound of a tone provided that the strike tone remains unchanged?")*

Compositional assignments of this type give room to contemplations over properties of a tone, the rhythm, the structure of a musical piece, etc. It is becoming apparent that there are many possibilities of working even with such limited initial material.

François Förstel[63] is another name in the line of music educationists who are strongly opposed to the traditional approach to music education. In order for students to be able to penetrate beneath the surface of experimental music, they must divert from the traditional "talking about music" and result from their own creative potential. The author summarised his own method, how to achieve this, into ten points:

1. "*Neue Musik musst du selber machen! (Handlung) ("You must make new music yourself!(Action)")*
2. *Neue Musik muss sichtbar gemacht werden. (Visualisierung) (New music must be made visible!(Visualisation))*
3. *Habe Mut zur Eigengestaltung, zur Parodie und zur Vereinfachung. (Produktion I) (Take courage to your own creation, parody and simplification. (Production I)*
4. *De-komponiert überlieferte Stücke! (Produktion II)(Decompose the traditional pieces! (Production II))*
5. Bringt Laien und Profis zusammen! (Öffnung der Schule) (Connect laymen and professionals! (Opening of school))
6. Wählt elementare und einfache Beispiele. (Einfachheit) (Choose elementary and simple examples. (Simplicity)
7. *Neue Musik braucht neue Instrumente und neue Ohren! (Experimente) (New music needs new instruments and new ears! (Experiments))*
8. *Geht Dissonanzen nicht aus dem Weg! (Schüler nicht nur abholen!) (Do not avoid dissonances! (Not only take over the pupils))*
9. *Ältere und neuere Musik gehören zusammen! (Integration) (Old and new music belong together! (Integration)*)

[63] FÖRSTEL, F. Schweizer Käse, fast food und Klangwörter-Menü. Neue Musik selber komponieren. In BÄßLER, H. (ed.) *Brücken. Musikunterricht im geeinten Europa* (Swiss Cheese, Fast Food and Menu of Sound Words. Compose New Music Yourselves. In BÄßLER, H. (ed.) *Bridges. Music Education in United Europe*). Mainz 2001, p. 89–96.

10. Gebt nicht die Anstrengung hermeneutischer Verstehensarbeit auf! (Sinndimension)"[64] (*Do not give up striving after hermeneutical understanding's work! (Sense dimension*))

Apart from theoretical deliberations on the topic of classroom composing, François Förstel in his text also brings several specific proposals how to go about this activity. Coincidentally, two of the stated compositional tasks are related to minimal music.

The first task is called *Schweizer Käse*, and it is based on compositional principles of substitution (substituting a tone with a rest or vice versa) or subtraction and addition. It belongs into a group of exercises, which are based on working with words. His assignment is the following: *"Erfindet einen volltaktigen Spruch von acht Silben Länge und ordnet jeder Silbe eine Achtelnote zu. Ersetzt dann bei jeder Wiederholung eine Silbe durch eine Pause. Gebt eurem Sprechstück einen Titel, ergänzt eure Namen und übt das Sprechstück ein.*

Spielweisen: ("Create a full time eight-syllable sentence and adjoin a quaver to each syllable. When repeating, always substitute one syllable with a break. Give a title to your sentence, add your names and exercise the sentence. Game Methods:)

- *jede Zeile viermal wiederholen (repeat each line four times)*
- *den Ablauf von unten beginnen (start from below)*
- *einen passenden dynamischen Verlauf vereinbaren (agree on an appropriate dynamic course)*
- *zwei Verläufe überlagern (shift two courses)*
- *das Verfahren auf Melodien oder Geräuschfolgen übertragen."*[65] *(transfer the proceeding to melodies or sequences of sounds.")*

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[64] FÖRSTEL, F. Schweizer Käse, fast food und Klangwörter-Menü. Neue Musik selber komponieren. In BÄßLER, H. (ed.) *Brücken. Musikunterricht im geeinten Europa* (Swiss Cheese, Fast Food and Menu of Sound Words. Compose New Music Yourselves. In BÄßLER, H. (ed.) Bridges. *Music Education in United Europe*). Mainz 2001, p. 96.

[65] FÖRSTEL, F. Schweizer Käse, fast food und Klangwörter-Menü. Neue Musik selber komponieren. In BÄßLER, H. (ed.) *Brücken. Musikunterricht im geeinten Europa* (Swiss Cheese, Fast Food and Menu of Sound Words. Compose New Music Yourselves. In BÄßLER, H. (ed.) Bridges. *Music Education in United Europe*). Mainz 2001, p. 91.

A visual illustration can be rendered as follows:

1. In der Schule wird geschrieben (We write in school)

in	der	Schu	le	wird	ge	schrie	ben
in	der		le	wird	ge	schrie	ben
in	der		le	wird	ge		ben
in	der		le	wird			ben
in	der		le				ben
in			le				ben
			le				ben
			le				

2. Hausaufgaben kriegt man immer[66] (We always get more homework)

Haus	auf	ga	ben	kriegt	man	im	mer
Haus		ga	ben	kriegt	man	im	mer
Haus		ga	ben	kriegt	man	im	
Haus		ga	ben		man	im	
Haus		ga	ben			im	
		ga	ben			im	
		ben				im	
						im	

There are numerous variants to his exercise. Five possible modifications are stated directly in the assignment – for example multiple repetitions of each line, the last "silent" line is to be taken as first, including the appropriate dynamics, implementation in two groups or using various melodies or sounds instead of a voice. Conversion into the Czech language does not present any problems.

[66] FÖRSTEL, F. Schweizer Käse, fast food und Klangwörter-Menü. Neue Musik selber komponieren. In BÄßLER, H. (ed.) *Brücken. Musikunterricht im geeinten Europa* (Swiss Cheese, Fast Food and Menu of Sound Words. Compose New Music Yourselves. In BÄßLER, H. (ed.) Bridges. *Music Education in United Europe*). Mainz 2001, p. 93.

The second task, called *fast food*, is built on compositional utilisation of a single tone – an F, to be specific. The author is consciously following up on a similar project published ten years earlier by Ortwin Nimczik. Förstel's composition is stipulated for a piano:

"*Entwerf in Gruppen zu 3–5 Schülern ein Klavierstück nach folgenden Regeln:*

1. *Länge: 4 Takte, Taktart: 4/4, Noten- und Pausenwerte: 1/8–1/1.(Length: 4 times, time kind: 4/4, values of notes and breaks: 1/8–1/1.)*
2. *Einigt euch in der Gruppe auf einen Ton. (Agree on one tone in your group.)*
3. *Ordnet jeder Linie einen Spieler und eine Tonlage zu. (Assign one player and one position to each line.)*
4. *Entwerft einen rhythmischen Ablauf und findet einen Titel.(Propose one rhythmical course and find a title.)*
5. *Übt euer Stück zunächst klopfend am Tisch, dann am Klavier.(When practising your piece, first mark the time on the table, then play the piano.)*
6. *Präsentiert das Stück vor der Klasse.(Present the piece to class.)*

Variante: 2–4 Töne (harmonisch, disharmonisch)."[67] (Variant: 2–4 tones (harmoniously, disharmoniously)."[67]

The exercise is much more specific than with Nimczik. Differences in individual parts (F tones in various registers – e.g. f4 f2 F F) are mainly due to the chosen rhythm (or possibly the dynamic course). It is clear from the assignment that at least the basic theory of music knowledge is necessary, which could be bypassed in a certain way though, and therefore would not represent any handicap for students. This task presents another interesting example of how musical material reduced to a mere single tone can be used.

Also **Bernhard Weber's** contribution, called '*…kein fehler imt sysem…*'[68], reflects on how to make repetitive music accessible to children through simple means; here specifically through phase shifting. This principle should be outlined at the very beginning of the entire project by the means

[67] FÖRSTEL, F. Schweizer Käse, fast food und Klangwörter-Menü. Neue Musik selber komponieren. In BÄßLER, H. (ed.) *Brücken. Musikunterricht im geeinten Europa* (Swiss Cheese, Fast Food and Menu of Sound Words. Compose new Music Yourselves. In BÄßLER, H. (ed.) *Bridges. Music Education in United Europe*). Mainz 2001, p. 94.

[68] WEBER, B. "…kein fehler imt sysem…". *Musik und Bildung*, März 1998, p. 26–33. ("…no mistake in system…". Music and Education, March 1998, p. 26–33.)

of visual non-musical examples. In this case, the author recommends Andy Warhol's painting *Coca-Cola Bottles* or a poem by Eugen Gomringer *3 variationen zu 'kein fehler im system'("variations on "no fault in system")*. A passage from the poem appears as follows and phase shifting is absolutely clearly depicted:

kein fehler im systém (no mistake in system)
kein efhler im system
kein ehfler im system
kein ehlfer im system
kein ehlefr im system
kein ehlerf im system
kein ehleri fm system
kein ehleri mf system
kein ehleri ms fystem atd.[69]

For respective musical elaboration of this process, the author offers specific compositional model (or instructions). This can be interpreted without any change directly or it can be modified according to the needs of a given class. The model consists of a total of nine patters, divided into three groups of three (according to the tone duration – quarter, eighth, sixteenth) and all of it is in D Dorian key. Within all of these three groups, the patterns run in a different meter (5/4, 4/4 a 3/4), and their continuous mutual shifting thereby occurs. In order to achieve greater effect of the entire exercise, it is subsequently possible to experiment with tones, which with different rhythmic accentuation and further interesting acoustic effects can be achieved by exempting or dampening individual tones from Orff instruments (e.g. xylophones). The entire course of a piece can be recorded by means of simple graphic symbols. Based on these experiences, pupils can subsequently create their own pieces, whether independently or in groups. "*Das geschieht in der Unterrichtspraxis in aller Regel durch die tonale und metrische Modifikation einzelner pattern. Nur wenigen Schülern gelingt ein*

[69] SCHNAUBER, C. (ed.) *Mein Gedicht – deine Träume. Eugen Gomringer und die konkrete Poesie (My Poem – Your Dreams. Eugen Comringer and Concrete Poetry*). Nördlingen 1989. Quoted from WEBER, B. "…kein fehler imt sysem…". *Musik und Bildung,* März (Quoted from WEBER,B. „…no mistake int sysem…„ *Music and Education, March*) 1998, p. 27.

wirklicher Transfer, indem sie sich ganz von der Vorlage lösen, und nach dem Prinzip der Phasenverschiebung ein völlig neues Musikstück erstellen."[70] („*As a rule, this is performed in the teaching practice by means of tonal and metrical modifications of particular patterns. Only a few of the pupils manage a real transfer by exempting from the pattern entirely and creating quite a new music piece according to the principle of phase shifting.*")

According to Weber, all of these activities should be set in a broader context – other compositional principles of minimal music (such as additive and subtractive rhythms), its cultural and historical roots and development, the issue of aesthetics, etc., should all be taken into account. Also, listening to specific pieces or excursion into the area of visual arts and literature should not be missed.

Bernhard Weber's project includes reproductive character activities as well as an outline of children's possible own compositional activities. He leaves the overall concept to the teacher's discretion, who can transform hereby acquired inspiration according to his/her own ideas and the requirements of a specific class. The effort toward including minimalism into a broader cultural context can also be perceived as positive.

Evaluation

Overall, we can state that the initial assumption about suitability of minimal music for classroom composing was confirmed, although with certain reservations. There is certain inconsistency between the initial expectations and the actual results. Minimalist techniques are basically described by their authors as elementary, simple, easily accessible and imitable. However, it turns out that when practically applied, they bring many ailments (especially in connection with complicated rhythm, regular pulse, and the use of traditional notation) and some limitations (exactly stipulated procedure of work). It turns out that compositional principles of this style, which appear to be simple at first glance, are often immensely difficult to imitate (especially for smaller children). There is an issue mainly with maintaining a steady tempo and pulse, orientation in multiple repetitions and maintaining independence of one's own voice (i.e. not letting others confuse you). I, therefore, believe that accessibility

[70] WEBER, B. "…kein fehler imt sysem…". *Musik und Bildung*, März 1998, p. 30. ("…no mistake in system …". *Music and Education*, March 1998, p. 30.)

of compositional activities in relation to minimalism increases with the age of a target group and previous musical experience and skill, especially playing a musical instrument, can also be of a great advantage as they provide sufficient training in rhythm.

In any case, it is definitely worth creating with children, whether it is done absolutely free or by means of specific techniques of contemporary music, as "*It is better to make a piece of music than to perform one, better to perform one than to listen to one, better to listen to one than to misuse it as a means of distraction, entertainment, or acquisition of 'culture'*."[71]

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Elements of Sub-Saharan Music and Indian Classical Music in Integrative Experimental Music Teaching at Grammar School

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Abstract
The subject of research for this dissertation is ethnic music and its application in music teaching at higher grammar schools. The model patterns concern two topics from the field of non-European music: Sub-Saharan music (SSM) and Indian classical music (ICM). The selection of these topics is mainly associated with the domain of teaching music at secondary schools and at university level; however, in many aspects it reflects society-wide topics. Both selected fields are addressed and presented with respect for their subsequent use in the creation and implementation of model integrative lessons of music education. All information contained herein has been assembled with this intention in mind. Brief characteristics of SSM and ICM are given, and the basic principles pertinent and applicable to the said fields are defined. These form the basis of teaching units, which are first designed (models and sub-models of activities) and subsequently also implemented. Work is, therefore, logically divided into theoretical and application parts. Pedagogical research was conducted in 2008/2009 at the higher grammar school of František Křižík in Plzeň, in three parallel classes. Some activities were also verified at a lower grammar school. The research results were then complemented with the curricular documents of education reform. The results favour the entire proposed concept of inclusion of ethnic music in grammar school teaching. The dissertation was supervised by prof. PhDr. Josef Říha. It comprises 270 pages of text, 79 pages of appendices in the form of pictorial material and three DVDs with audio and video recordings.

Key words
ethnic music, experimental music teaching, Grammar School of František Křižík in Plzeň, Sub-Saharan music, Indian classical music, integrative music teaching

"I do not want to listen to how something cannot be done all the time, I would rather show what it is that can be done"[1]

Introduction

The topic of ethnic music has been at the forefront of my interest for a number of years now. I have been pointing out the possibilities of using it in grammar school teaching at numerous presentations in conferences (see below Summary of author's publication activities, related to the topic) since 2001. The plenitude of experience, which I have gained throughout my ten-year experimental teaching of music education at the Grammar School of František Křižík in Plzeň (hereinafter as GFK) and the undisguised interest of the academic community in their conveyance, convinced me towards selecting this alternative topic. The initial strong experience from random contacts especially with non-European music crystallized during the past five years into its systematic exploration and seeking the possibilities of how to use the elements of this music in teaching music education. *"A person, who not only knows but also practically performs the object of research – in our case ethnic music, has a better starting point even for just theoretical reflection! I, therefore, especially recommend trying to practice (!) some of the mentioned musical principles and ideas from history and other cultures."*[2] A crucial stimulus for integrating the elements of ethnic music in music teaching at grammar school level was the contact with experts from this field, ethnomusicologists V. Matoušek, Z. Jurková, E. Kwietoň and also with musicians and dancers, already practicing ethnic music (especially with T. Reindl and A. and I. Hess). The Non-European music course, which was held by the Multicultural Centre Prague in 2001 for music education teachers from various types of schools, brought forward enough ideas for the gradual emergence of a concept for integrative experimental

[1] Motto of the dissertation spoken by prof. Jaroslav Herden to introduce his workshop at a conference in Ústí nad Labem. *Aktuální otázky současné hudebněvýchovné teorie a praxe III (Current Issues of Theory and Practical Music Education Today).* Ústí nad Labem: J. E. Purkyně University, The Faculty of Education, Department of Music Education, 2008.

[2] MATOUŠEK, Vlastislav. Etnomuzikologie u nás: aktuální stav a úkoly (Ethnomusicology in the Czech Republic: current status and tasks). In *Miscellanea of annual conferences 1999 and 2001.* 1st edition Prague: Czech Musicological Society VIVAS Prepress, 2001. p. 106.

music teaching. GFK has been, for the past nine years and according to the principles of Budík and Poledňák and in compliance with the trends of current curricular reform, successfully implementing the concept whereby students of higher classes are introduced to the elements of ethic music from various parts of the World within a half-year cycle of music education. Knowledge and skill, acquired mainly through the rich spectrum of musical activities, also prepare them for subsequent closer contact with Euro-American music (i.e. the concept "back home from a trip round the World").

The Dissertation Elements of Sub-Saharan music (SSM) and Indian classical music (ICM) in integrative experimental music teaching at higher grammar schools presents particular segments of this half-year long cycle of music education, which are devoted to selected musical areas. The concept of the dissertation was affected by several factors (Introduction of the dissertation): from criticism of the current music education, i.e. dominance of Eurocentric perspective on music education (Matoušek), where no areal application of activity concept of music education is performed (Novotná), to the emphasised need of seeking possibilities of closer ties between theory and practice = a requirement, which is heard repeatedly at various scientific musical workshops (Novotná, Poledňák, Váňová…). The timeliness for selecting such topic further ensues from the life of Man in today´s society where multicultural inflections are increasingly blending. *"The world and music are changing, but subjects on the theory of music in schools at all levels, including the teaching of non-artificial music, still rely on classicism and romanticism models, from which we are at least a century away! This is a phenomenon not seen in any other field."*[3] As a result of various contacts from often very distant cultures, the interest of Man in understanding them better is growing. This can reflect, apart from interest in travelling, in the desire for more complex understanding of music development in the global context. *"It comes not only from the interest of young listeners, but especially from the real need of the current world. We need to give students the opportunity to compare the musical roots of their nation in the context of other ethnic music. And this is where we see the weakest link in today's concept of training music education teachers."*[4]

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3 MATOUŠEK, V. *Rytmus a čas v etnické hudbě (Rhythm and Time in Ethnic Music)*. 1st edition Prague: TOGGA, 2003. p. 1.

4 NOVOTNÁ, Dana. Analýza současného stavu hudební výchovy na gymnáziích (Analysis of the Current Status of Music Education at Grammar Schools).

Objectives

The dissertation was drafted primarily with the objective of practical application of the compiled material in music education: *"We could say that the current level of methodology of music education as a scientific discipline is dependent on the manner of investigating practical music education, on the system of methods used for theoretical and empirical research, on the implementation scope of this research and on the manner of interpreting the findings of this research, and integrating them into the current system of methodology."*[5] The following objectives were stipulated in accordance with the stated intention:

- With respect to the subsequent practical application of the findings, to collect, analyse and select all material required for the creation and implementation of teaching units (bibliography, resources, internet links, selection of activities, and additional material for theoretical as well as application parts…). The selection of recommended bibliography, resources, etc., of the documents is then governed by the criteria of its availability for a common teacher of music education.
- On theoretical basis, to create models and sub-models for integrative musical activities such that they can become the contents for two-lesson or multiple-lesson classes of music education, especially at grammar schools (possibly at other schools with music education lessons).
- By means of experimental teaching, to prove the feasibility of the proposed techniques (lesson records and their theoretical reflection) and point out any possible positive impacts, which the experimental concept

In *Aktuální otázky současné hudebněvýchovné teorie a praxe (Current Issues of Theory and Practical Music Education Today): Miscellanea from a national conference, held on 15. 11. 2005.* Ústí nad Labem: the Faculty of Education, J. E. Purkyně University, 2006. p. 74–83 One could argue that the research work by D. Novotná brings information that is five years old. Having the knowledge about the situation at five state grammar schools in Plzeň, I feel confident to state that the situation there will not have changed much even five years on from the research.

5 VÁŇOVÁ, Hana. Od praxe k praxi: systémový řetězec didaktiky hudební výchovy (From Practice to Practice: a systematic chain of Music Education methodology). In *Aktuální otázky současné hudebněvýchovné teorie a praxe (Current Issues of Theory and Practical Music Education Today): Miscellanea from a national conference, held on 15. 11. 2005.* 1st edition Ústí nad Labem: the Faculty of Education, J. E. Purkyně University, 2006. p. 9.

of teaching may have (input questionnaire, output questionnaire – topic of cultural identification).
– Confront the results of experimental teaching with the requirements of curricular reform. Perform theoretical reflection of the findings.

Topic definition, clarification of terms, status of solution of the issue (Dissertation – Introduction and chap. 1)

The dissertation "*Elements of Sub-Saharan music (SSM) and Indian classical music (ICM) in integrative experimental music teaching at higher grammar schools*" prompted me to combine my original intention of pointing out the various possibilities of disciplinary and inter-disciplinary integration of musical activities with specific and alternative education contents. In accordance with the above stipulated objectives, the basic terminology, which appears in association with both topics, was defined first (chap. 1): ethnicity, ethnic music, traditional music, non-European music, ethnomusicology (Jurková, Matoušek) and world music (Fridmann). During the compilation of both topics, issues pertaining to the limited choice of Czech bibliography dealing with non-European music rose at the outset. This state of research was aptly remarked on by our leading ethnomusicologist, Z. Jurková, in one of her articles as: *"…the harvest truly is plenteous, but the labourers are few."*[6] Ethnomusicology itself is actually a scientific field, which is constantly striving for recognition of equal position with other musicological disciplines. Despite stating this fact, authors of Introduction to Musical Science are even forecasting possible future primacy for this field: *"It could very well be that in some future introduction to musicology study, ethnomusicology will not be somewhere "in the line", together with other musicological disciplines, but will be somewhat forward in the sense that the starting point for studying the phenomenon of "music" will be considered the fact of diversity, specific conditionalities and original developmental lines of varied collection of all musical cultures of the world."*[7] The publication activities of Z. Jurková, V. Matoušek, P. Dorůžka (our

[6] JURKOVÁ, Zuzana. Česká etnomuzikologie - zrcadlo doby? (Czech Ethnomusicology – Reflection of an Era?) In *Miscellanea of annual conferences 1999 and 2001.* Prague: Czech Musicological Society, 2001. p. 87.

[7] POLEDŇÁK, I.; FUKAČ, J. *Úvod do studia hudební vědy (Introduction to Musicology Studies).* 1st edition Olomouc: Palacký University, 2005. Ethnomusicology, p. 146.

leading ethnomusicologists) thus represent a main source of information for processing the theoretical part of the dissertation. However, this material, often with strictly scientific contents, had to be carefully selected for the needs of creating model lessons as a) its contents are usually less comprehensible for a common music education teacher (the issue of understanding technical terminology and comprehending unfamiliar musical principles with no immediate contact with this music), and b) it contains information, which is rather excessive as far as the needs of music education is concerned. Another source of some scientific as well as popularizing information is, therefore, translations of selected foreign publications (Nketia, Kubik, Okunade, Holroyde, Ott[8]).

Despite the fact that non-European music is the subject of study of a limited number of experts, it has been successfully penetrating the Czech Republic for a number of years, especially as the so-called *world* music, performed by foreign as well as domestic musicians. To create the theoretical grounds for model lessons, the findings and materials acquired mainly in/from courses led by foreign as well as domestic lecturers of SSM and ICM were used.

When compared to other countries (e.g. Germany), we have very little methodical material for applying elements of ethnic music in school teaching. It, therefore, finds its way into Music Education through various alternative paths (e.g. workshops for teachers – The Czech Orff School, copies form foreign textbooks, exchange of musical notations between choirs, etc.). Besides the unique thesis by M. Vránová[9] (supervised by Š. L.), which is less accessible to a common teacher, the practically but only more complex methodical material that can be used is Ethnic Music in Schools ("Etnická hudba ve škole") by Z. Jurková and K. Horáková.[10] This book contains a selection of basic information on non-European music presented by ethnomusicologists. Samples of several model lessons

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8 See list of literature.

9 VRÁNOVÁ, M. *Etnická hudba a její začlenění do výuky na střední škole (Ethnic Music and its Integration into Teaching at Secondary School).* Plzeň: 2007. 97 p. Diploma thesis. Department of Musical Culture, the Faculty of Education, University of West Bohemia. Advisor Š. Lišková.

10 JURKOVÁ, Z.; HORÁKOVÁ, K. *Etnická hudba ve škole (Ethnic Music in School): methodology for introducing non-European music at primary and secondary schools.* 1st edition Prague: Multicultural Centre, 2001. 72 p. (chapters Australia, Sub-Saharan Africa, North American Indians, Latin America, Arabic-Islamic region, India, South-Eastern Asia, the Far East. Enclosures: additional CD).

are added, compiled by graduates of the Multicultural Centre course and teachers from various types of schools as part of their output tasks. A model lesson of SSM, which I repeatedly implemented at a grammar school, was selected for this book by its editors.[11] The methodical material "Ethnic Music in Schools" was originally only published for graduates of a one-semester course; it therefore does not contain information that would be absolutely complete in order to implement all of the activities stated herein. The dissertation aims to provide a complex perspective on the limited selection of two topics from ethnic music, thus the corresponding concept of the dissertation. With this objective in mind, only two key topics from the area of non-European music were selected for elaboration.

The presented concept of the dissertation also represents a universal system, which can be inspiration for potential candidates (authors of similar dissertation) in creating selected model lessons and their subsequent theoretical reflection. *"In our field of music education, there might be perhaps more serious and alarming discrepancy between the level of theoretical knowledge (…) and the level of music practice than anywhere else. It seems to me that this is also where the requirement for pedagogical experience is evolving, the requirement to truly pursue a scientific study of the possible ways of practical application of one's own achievements. And yes, even this can be the subject of music theory and this is where I see great potential for utilising the scientific potential of the faculties of education; this is just what nobody else can do for them…"*[12]

The dissertation is further presented to its readers through a brief general insight into its contents, and subsequently also through a more detailed probe in selected chapters.

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11 LIŠKOVÁ, Š. Hudba subsaharské Afriky (Sub-Saharan Music). In JURKOVÁ, Z.; HORÁKOVÁ, K. *Etnická hudba ve škole (Ethnic Music in School).* Prague: Multicultural Centre Prague, 2001. p. 64–66.

12 POLEDŇÁK, Ivan. Klíčový problém hudební pedagogiky: Svár koncepce a praxe: Návrh koncepce hudební výchovy pro gymnázia z roku 1969 a realita (The Key Issue of Music Education: a Feud between the Concept and Application: a Proposal for Music Education Concept for Grammar Schools from 1969 and Reality). In *Hudebně pedagogické invence (Music Education Inventions).* Prague: Charles University, the Faculty of Education, 2005. p. 101–102.

Dissertation concept – a summary

The dissertation is divided into three main sections. The first section is purely a theoretical part where the introductory chapters (Introduction, Topic definition, clarification of terms, and the status of solution of the issue) are followed by the two parts of the dissertation, in which music from both selected significant cultural areas is presented (Dissertation – chap. 2 and 3). These chapters contain key information, representing a valuable source of information for creating Music Education lessons with elements of SSM and ICM. With this intention in mind, all literature and other material are selected.

A more extensive chapter (Dissertation – chap. 4), where proposals for integrative musical activities with SSM and ICM elements are presented, can be considered as part two of the dissertation's theoretical part. The third section of the dissertation is the application part. It encompasses description of the process and the results of experimental teaching (Dissertation – chap. 5 and 6) wherein the proposed model lessons were included. The teaching was carried out during the academic year of 2009/2010 in higher classes of GFK. First, the entire process is reflected in theory with the stipulated prerequisites to be carried out (Dissertation – chap. 6.5) and subsequently, also confronted with the requirements of the curricular reform (Final chap. 7.)

Theoretical part

Criteria for selection of topics as SSM and ICM:
Two contrasting topics from the field of non-European music were selected intentionally for the following reasons:

- I have been actively working with music in both areas for a number of years now.
- Music from both areas repeatedly appears in the Czech alternative music scene.
- Both areas show musical principles, which can become the contents of creative musical activities. They provide sufficient attractive material for integrative music teaching.
- Secondary school youth tend to approach music of both areas without any set prejudices, which is unfortunately not something we can say

about, e.g., their approach to artificial and non-artificial European music.
During the nine-year course of experimental teaching, these two areas were the most frequently stated by students in a list of units that intrigued them the most (Data from Output questionnaires).

– It is an attractive material, which intersects into other disciplines of social science. Students are, therefore, able to utilise their knowledge from other subjects in the units of music education.

Other criteria for selection

In SSM (so called Black Africa), music is traditionally passed verbally from generation to generation. Music still features there in the whole spectrum of its original functions. Ethnomusicologists agree in stating that despite the considerable vastness of the investigated field, SSM shows similar features (polyrhythmics, system of patterns, collective nature of musical events,…). Giving a name to these common musical principles and their presentation through illustrations helped acquire suitable groundwork for creating subsequent model lessons.

For example: An important feature of SSM is the collective essence of music. Musical activities here take place in close social interaction of the whole team, individual elements of this course are often inseparable (dance, singing, instrument playing in SSM), which absolutely supports the principle of integrating musical activities in Music Education. The collective nature of music thereby becomes the initial point for starting musical activities, within which we get acquainted with SSM music. Together with elements close to this principle and activities close to the nature of SSM (playing drums, collective singing with rhythmization, dance, active listening), techniques from music therapy (looking for a collective rhythm From chaos to order), which apart from learning about "foreign" cultures can also assist in successful socialization of a class, can also be integrated in teaching Music Education within the SSM unit. Even research results point out that these issues are becoming increasingly more topical in music pedagogy of today.[13] Working with the polyrhythmic and polymelodic system of SSM can contribute to deeper understanding of e.g. development of European music (Renaissance polyphony x working with

[13] The Prague Group of School Ethnography. *Čeští žáci po deseti letech (Czech Pupils Ten Years On).* Prague: Charles University, the Faculty of Education, 2004. 240 p.

polyrhythmics and polymelody in SSM – practicing a lullaby from the Kaka tribe, practicing and listening to the Pygmy polyphony).

For example: Pygmy music

In a model lesson, and as part of the listening activities, students are mainly acquainted with the sound of musical instruments – they also learn about these sounds through practical activities, such as playing the djembe, the balafon, the kalimba and the rattle – but also listening to Pygmy songs. Again, the selection is not coincidental. It follows the rules that were already stated several times: attractiveness, peculiar to unusual musical material and its availability. The topic of music of native people, still living in symbiosis with their surrounding environment, is an appropriate means of interconnecting curriculum within one subject, and cross-curricular and inter-disciplinary integration. Learning about the principles of Pygmy groups' music can provide a *suitable transfer*

- to an area of artificial music (polyphonic singing) and minimal music (the principle of patterns = repeated melodic and rhythmic patterns). (Not only) Students assume that a society of hunter gatherers, which the Pygmy tribes in this case represent, would mean discovering music on a very primitive level. However, the use of polyphonic singing, which is compared to European polyphony from the 14th century, and the manner of its performance (yodelling, the principle of patterns) suggests otherwise. The element of surprise plays a very significant motivational role here.
- to an area of interdisciplinary integration with links to other subjects. The Pygmy topic very often appears in other secondary school subjects (e.g. the following would concern at the grammar school where I teach: History, Geography, Civics, and Anthropology Seminar).[14]

And because of the possibility of using this topic in Music Education as well as in the interdisciplinary area, it is appropriate to extend the range of future teacher's knowledge with the necessary related information. Additionally,

[14] The need to introduce teaching topics in broader socio-scientific contexts was "enforced" by students themselves. When adhering to modern teaching principles we are expecting for students to enter Music Education lessons with certain level of knowledge. A music teacher must have at least basic awareness of the topics that he/she is coming with (geographical, historical, socio-cultural perspective). Based on my long-term experience I can confirm that it is the confrontation of such knowledge and their completion with musical aspects that play the required motivational role.

information on the unique Pygmy singing (including brief information about the life of these ethnic groups) is also included in the theoretical part of the dissertation.

In ICM the topic concentrates mainly on Indian classical music, which has very often been appearing at our alternative music scene (especially North Indian classical music), in classical form as well as modified interpretation (e.g. Damaru group, kathak dance), and also in a significantly modified form (Bollywood productions). Even this information can draw a parallel with Euro-American music development. ICM is selected and presented as a parallel to the development of European artificial music. It is a very sophisticated art, based to a greater extent on improvisational skills of its interpreters (Kubičková). Indian music theory and practice develop a unique musical system, which represents the peak of musical development of rhythmically-monomelodic style of music. However, unlike the majority of European artificial music, it is always performed in closed circles of artists. Music (dance) skills are also passed on through oral lore in the so-called family schools. The principles of music, adopted by Indian musicians and dancers, result from uniform foundation of memorizing initial rhythmic patterns and connecting them with the principle of melody (*raga – tala*). Working with the foundation of this system becomes the contents of lessons with elements of ICM. The theoretical part provides, at the least, basic introduction to this system on the basis of available examples (including video-recordings and images). ICM coexists in close contact with the entire culture and religion. And for that reason, we cannot do without basic information about this context.

When comparing the system of rhythm and monomelody with the system of melody and harmony, the students tend to acquire deeper understanding of European music development! ICM works with natural tune and thereby, with shorter than semitone intervals. And this also stirs a topic for discussion as well as deeper understanding of music development…

Elaboration of the SSM area is based on experience with creating groundwork for the already published model lesson (Ethnic music in schools). The chosen approach is, therefore, already verified through nine years of experience with its application. The area of ICM has not yet been

elaborated for school needs.[15] Both stated chapters (Dissertation – chap. 2 and 3) thereby provide a brief historical insight into the development of music in both areas, and their basic musical characteristics. In an effort to provide more comprehensive information on both the areas or to at least partially consolidate them and aim for future practical use, compiling the theoretical part of the dissertation from the overall conceptual perspective proved to the most demanding task.
Example of text for SSM (Dissertation – Theoretical part: chap. 2. 1. 1 Musical characteristics of the Sub-Saharan cultural area):

SSM shows the following common principles:
A dominant element of African music is *rhythm*, which is most frequently implemented by using one's body as an instrument, playing a musical instrument, dancing and singing, as well as making other vocal sounds. It is specific to SSM that often multiple rhythmic bands are sounded together – this is called ***polyrhythmics*** and ***polymetry***. *Polyrhythmics* is characterized by T. Kuhn[16] as blending of three or more independent parallel lines, through the composition of which a complex shape is created. In terms of music kinetics, we differentiate between various types of polyrhythm (true, false and mixed). In *polymetry*, African music applies two or more metrically independent voices, proceeding concurrently. Each band has – unlike the majority of European music, based on uniform understanding of measure – its own axis of accented and unaccented beats. And it is for this reason that orientation in the labyrinth of a polyrhythmic web is not only difficult for listeners, who are inexperienced with SSM, but also for musicians and dancers trained in Western European music. This fact is also stated by professional musicians who are more familiar with black music. Diversities can also appear in the tempo of playing individual bands, which can be related to different concept of time in African nations (different

[15] I am omitting the very successful multicultural achievement by authors of this less distributed publication *"Dějiny hudby v obrazech a obrázcích" (History of Music in Images and Pictures)*. This is only a very brief (rather theoretical) insight to the music principles of both areas. BOHUMÍR, H.; FENCLOVÁ, J. Dějiny hudby v obrazech a obrázcích (History of Music in Images and Pictures). Čelákovice: Klub přátel ZUŠ (Art School Club), 2009. 204 p.

[16] KUHN, Tomáš. *Hudba jazzové oblasti z pohledu hudební kinetiky (Jazz Music from Music Kinetics Perspective)*. 1st edition Plzeň: University of West Bohemia in Plzeň, 2007. Metro-rhythmic elements of African music, reflecting in jazz music, p. 11–15. ISBN 978-80-7043-529-8.

passage of time during spiritual activity). According to V. Matoušek[17], the Sub-Saharan area from European listener's or scientist's perspective shows *"substantially unclear kinetics"*. Orientation in the web of polyrhythm and polymetry is mainly enabled by the so-called elementary pulsation, which can either only be felt (through inner hearing) or implemented by playing an instrument, or by movement.[18] It is formed by the smallest time values of a given rhythm structure (entered into European notation as a sequence of quavers). Division of this unit into smaller values only happens sporadically, rather during improvised soloist inputs. This walking pulse is often only identified through inner hearing. All implemented patterns (see below) are entered into this "continuous staff" (played or only felt) in strict time measure for their location. African music, thereby, runs in absolutely precise rhythmic proportions, and unlike European music, there is no rubato or intentional suppressing of music's element of rhythm[19] (classical music). The timbers of individual instruments, as well as (for example) sound diversity of specific types of strokes on various types of percussions, play an important role in the consistency of polyrhythmic and polymetric patterns.

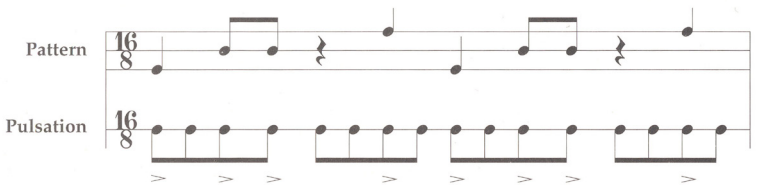

Figure 1 Example of elementary pulsation (under the drum pattern)[20]
Example of text for ICM (Dissertation – Theoretical part: chap. 3. 2. 2 Tala – system of rhythm in Indian classical music):

Tintal (also called *trital*) is a name for the most common *tal* (pattern of rhythm), which is used to start music education (of dancers, singers,

17 MATOUŠEK, cit. 3, p. 109.
18 KONATÉ, F.; OTT, T. *Rhythms and Songs from Guinea.* Germeny: Institut für Didaktik populären Musik, 2000. African Rhytmus – A Few Basic Terms, p. 34.
19 Examples of intentional suppressing of the element of rhythm in European classical music are stated for example in: In WAUGH, A. *Vážná hudba: Nový přístup k poslechu (Classical Music: New Approach to Listening)*. Bratislava: SLOVO, 1995. p. 31.
20 KONATÉ; OTT, cit. 18, Image 1, p. 36.

instrumentalists) in India. The advantage of initial learning is the division symmetry of this pattern to 4x4 parts (*vibhaga*). For illustration, we can imagine the pattern as a sequence of regularly walking quarter values in a sixteen-beat measure indicated with syllables (dha, dhin, …). In European music, we first learn to play in binary, triple and quadruple measure.

Table 1: TIN TAL = Tri tal theka (= three claps)

DHA	DHIN	DHIN	DHA
DHA	DHIN	DHIN	DHA
DHA	TIN	TIN	TA
TA	DHIN	DHIN	DHA

Legend: (Š. L.) The entire model is read in lines from the left. The boxes contain traditional syllables of rhythm – *bols* (dha, dhin,…), which is given by the drummer before starting to play, and this specifies the type of tal, i.e. it indicates, what pattern of rhythm will be used. The names are onomatopoeic ("imitative"), i.e. the sound of a syllable corresponds with the sound of beat on an instrument. Teaching this pattern is described in detail in the model lesson. Annexes of the dissertation are stipulated for better understanding and training:

– Images (dissertation): Annex E/3 Figure 28 and 29 Other possibilities of displaying *tintal*
– Video recording (dissertation): Annex A 2/02 Tomáš Reidl's Studio of Rhythm. Eastern Rhythms. *Tintal* (teaching) [Annex A 1/20, 21, 22, 26 Tintal in experimental teaching (see chap. 6. 4)]

As already stated, the basic music principles in SSM and ICM are becoming the central motives of the proposed integrative musical activities with elements of SSM and ICM (Dissertation – chap..4). On theoretical level, enriched by the findings of field research (interviews, concerts, internships, workshops) as well as experience from nine years of experimental teaching of ethnic music at the Grammar School of František Křižík in Plzeň, the models and sub-models of musical activities with elements of SSM and ICM = sections were created with the intention for use in schools. The entire system consists of a selection of six activity sections for SSM and six sections for ICM.

For the area of SSM, these activities are:
- Section A/Possible options for introducing the unit of SSM with possible overlap to other fields: Option 1 a) *Introduction to SSM* and Option 1 b) Introduction to SSM *Looking for the roots of music*
- Section B/From alternative games with rhythm to polyrhythmics of SSM *From chaos to order*: Option 1 *Collective rhythm,* Option 2 a) *Polyrhythmics in SSM – Polyrhythmics – Rhythm training and Konkolo model,* Option 2b) *Traditional polyrhythmic model of Western Africa Bala Kulandyan,* Option 2 c) *Polyrhythmics in SSM* (practice of a simpler model)
- Section C/Singing activities: Polymelodic model in SSM: Option 1 a) *Lullaby from the Kaka tribe*, Option 1 b) *Selection of an alternative, i.e. a simpler song*
- Section D/Listening activities Musical instruments in SSM: Option *1Musical instruments in SSM*, Option 2 *Listening in association with other activities*
- Section E/Movement activities: Option 1: *For an inexperienced teacher as well as for an immature non-cooperating team*, Option 2: *For an experienced teacher and a team, which does not cooperate as yet*, Option 3: *For an experienced teacher and a cooperating team,* i.e. a teacher who is used to working with movement as part of Music Education, Option 4: *Collective dance with students,* Option 5: *Movement in association with other activities*
- Section F/Music of Pygmy groups: Option 1 *Characters of SSM in association with Pygmy music*, Option 2 Characters of SSM *Music of Pygmy groups*, Option 3a *Practice towards singing and listening to SSM*, Option 3b *Singing Pygmy songs*

For the area of ICM, these activities are:
- Section A/Possible options for introducing the unit of ICM with possible overlap to other fields: Option 1, 2, 3 *Introduction to ICM: A round of Indian culture* (from closer musical context to broader cultural context)
- Section B/Listening activities: *Musical instruments of ICM in the context of non-artificial music*: Option 2 *The raga – tala concept*, *musical instruments of ICM* Option 2a *Musical instruments of ICM*; Raga Option 2b *Musical instruments of ICM; Raga* – listening Option 3 *The Vedas*
- Section C/Instrumental activities**:** Option 1 *Working with emotions: Rasa*, Option 2 *Tal – the concept of rhythm in ICM*, Option 2 a) *Practice*

towards polyrhythmics in ICM, Option 2 b) *Musical instruments ICM, Tala*, Option 2 c) *Tintal with s tihai*
- Section D/Singing activities: Option 1 *Singing mantras* Option 2 *Singing a song inspired by Indian music*
- Section E/Movement activities: Indian classical dance: Option 1 *Indian classical dance in association with music and religion,* Option 2 *Indian classical and modern dance*

This is the essential foundation for creating a two-lesson and multiple-lesson teaching units of Music Education with elements of SSM and ICM. The compiled methodical material includes tasks for recommenced singing, listening, movement and instrumental activities, and it is collected and divided into individual sections, according to the selected type of activity or chosen topic from the areas of SSM and ICM. The methodical material is, for easier orientation, usually well-arranged in tables with description of the recommended activities (objectives – outputs), supplemented with necessary comments and documented in additional material (descriptive records, audio recordings, images and video recordings). If a lesson is implemented, the additional material must therefore be carefully studied as well. The dissertation also takes an alternative approach to movement activities (characteristics and video samples of dances, suggestions for alternative activities). As a university educationist and a leader of numerous workshops for teachers, I expect teacher's to have little experience with the application of movement activities in Music Education (mandatory part of education according to the Framework Education Programme). Without my leadership and presentation of the material, teachers potentially interested in alternative teaching of Music Education will probably only select some section from the entire spectrum stated in the dissertation. This fact was also taken into account. Individual sections can be combined and if needed, some can be used independently, e.g. in context with European music (e.g. the topic of a lullaby – we seek lullaby idioms around the world). Potential topic transfers are also pointed out in well-arranged tables (possibilities of applying this option). Some selected activities (working with emotions, establishing a collective rhythm, working with rhythmic patterns) can also be stated without any deeper context with SSM and ICM.
Example of a concept for activity sections: (Dissertation – kap. 4. 1. 2 Od alternativních her s rytmem k polyrytmice SSM – od chaosu k řádu v hudbě)

Section B/Option 2 a) Polyrhythmics in SSM

Table 2: SSM Polyrhythmics – rhythm training and Konkolo model

Category	Polyrhythmics in SSM – training exercise for using the body as an instrument
Objective of activity	Working with order in SSM. Interplay in polyrhythmic models. Playing polyrhythmic models is to help understand another principle from the area of musical production of SSM.
Instruments	Only required when practicing traditional rhythms of the Malinke tribe = percussions (as last resort can be replaced by using one's body as an instrument or by playing other objects). Polyrhythmic Konkolo model (see below).
Teacher's activity	– Leads training of even measure, once it is mastered then also odd measure. – Helps the groups in maintaining parallel play of both bands (triple and binary at the same time). – Leads the groups in training traditional African polyrhythmic model Konkolo.
Students' activity	– By using their own bodies as instruments, they express the even and the odd measure. – They do not lose orientation in their own measure even when binary and triple bands sound at the same time. – Gradual mastering of individual patterns from polyrhythmic Konkolo model. – During vocal memorizing of a pattern that was allocated to them they can keep to their part, while other polyrhythmic bands sound at the same time.
Allocated time	15 min.

Possibilities for application of this option	– within the unit of SSM, in the context of polyrhythmics in African music – In context with European music, within instrumental activities: – practicing polyrhythmics (eg. in relation to jazz music)
References to additional information	– Theoretical part: chap. 2.1.1 The principles of (Dissertation) – A model lesson: application = chap. 6.3.1, 6.3.2, 6.3.3(Dissertation) – Additional material: Annex G/2; Video recording: Annex A 2/04 14:10 (Dissertation)

Comments on activities:
The following comments (and additional material of the dissertation stated in the table) record detailed procedure for working with traditional polyrhythmic Konkolo model, used in SSM. This model was acquired through an education workshop for teachers (Z. Jurková). It is also mentioned by T. Kuhn in context with jazz music development, as an example of stabilized pattern of rhythm, which is often used, and emerged from rhythmical speech. *"In African music, there were spoken syllables, which often had no meanin, and created the basic frame of rhythm."*[21] The Konkolo model is also analysed in detail in foreign literature wherefrom it was probably adopted by Czech scientists. Kubik[22] states that this pattern is from the West African coast (the Yorubas), but at the same time he points out that writing similar units in Western European languages can, owing to the phonetic particularities of African languages, also be confusing (e.g. they distinguish several types of vocals).

[21] KUHN, T. Metrorytmické jevy africké hudby promítající se do hudby jazzové (Metro-rhythmic elements of African music, reflecting in jazz music). *Hudba jazzové oblasti z pohledu hudební kinetiky (Jazz Music from Music Kinetics Perspective)*. Plzeň: University of West Bohemia, April 2007, p. 15 Both examples only differ in wording of the pattern (Khun – Konkonlo, Jurková – Konkolo).

[22] KUBIK, G. *Zum verstehen Afrikasnicher Musik*. 2nd updated edition. Wien: LIT VERLAG, 2004. p. 92–93 (Images 1 and 2).

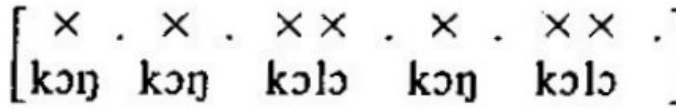

Figure 2: Polyrhythmic Konkolo model (the Yorubas)

Legend: The basis of the pattern consists of seven beats, divided within twelve pulses.

A team first prepares for implementing it through a polyrhythmic exercise, where students by clapping and playing instruments link a binary and triple measure. The entire model is creatively worked with in Music lessons:

Table 3: Konkolo - traditional polyrhythmic model, consisting of three patterns.

x	x	Kon		Kon		Ko	lo		Kon		Ko	lo
x	Ku	du		Ku	du		Ku	du		Ku	du	
I	za	pa	ni	pa	ti	I	za	pa	ni	pa	ti	I

The Konkolo model can have different variants. If the practice runs smoothly, once the polyrhythmic model has been recited, we can opt for selecting various modifications. In common reciting, individual parts can be closed, certain parts highlighted or to the contrary parts gradually added, all of which is instructed by a leader (can be a student). Students thereby not only learn to recite a polyrhythmic model but also to listen to multi-layer bands in various modifications and combinations, which in consequence helps in developing their musical imagination, greater sensitivity to singing and listening activities, related to polyphony in European tradition. Working with the model is described in detail in an annex to the dissertation.

Experimental part of the dissertation: methods used, brief characteristics of the experiment (Dissertation – chap. 5 and 6)

The Private Grammar School of František Křižík in Plzeň was selected for implementing the plan to point out certain possibilities of applying the proposed models in school routine directly. Three parallel classes of a

higher grammar school became experimental classes (Sample 1–3) = class six of the eight-year programme, class 1A of the four-year grammar school programme, and a class formed by a directive and consisting of students from class five of the eight-year programme, and class 2A of the four-year programme. The dissertation thus recorded the teaching units of Music Education with elements of SSM and ICM, conducted during the school year 2008/2009. Recording of participant's non-structured observation was always carried out immediately following completion of individual Music Education teaching units (Š. L.). SSM and ICM lessons were stated in the context of half-year block of ethnic music, during the course of which, students are, apart from working with SSM and ICM music, also introduced to Indonesian orchestra gamelan (by playing the Indonesian model), they try overtone singing (music of Tuva, Mongolia), play traditional Arabic rhythms, dance oriental dances, etc. Information on the varied material for musical activities provided by ethnic music is stated in the dissertation in a table with brief overview of the activities.

The course of research for implementing SSM and ICM elements in teaching at higher grammar school

In the units on SSM and ICM (highlighted in colour), students were intentionally not informed that both topics are the centre of the research. During the lessons, students' activity was monitored, as well as performance of their output tasks and the intervening variables, which significantly impacted the course of teaching (reconstruction of the school building with uninterrupted teaching, absence of students, observations by university students as well as presence of Music Education Teaching student, as part of her internship), were recorded. With the approval of the class, video recordings were acquired from some lessons. Minutes from lessons are a probe into Music Education lessons, which owing to the intention of the dissertation – to create methodical material for the needs of existing and future teachers – sets a significant target: to include new possibilities of applying the processed methodical material from the area of SSM and ICM into common teaching at a grammar school, and at the same time, point out some elements of interdisciplinary integration. However, more detailed investigation of the course of this experimental teaching and its erudite analysis could only be carried out as teamwork of several experts (from psychological and pedagogical fields): *"I think that one of the reasons why pedagogy often cannot find answers to complex issues of upbringing and education is the fact that pedagogical researchers within their "purely"*

pedagogical research still try to resolve issues extending beyond the borders of their field."[23]

This probe into the teaching process uses some methods and techniques of experimental research work (Dissertation – chap. 5 and 6):

- In accordance with the procedure, the teaching schedule was first set in the research work – "experimental plan". In this plan, the age of students, the level of their psychosocial maturity and the intellectual and phase arrangement of activities played an important role (What to include, When and How).
- *Selection and comparison of research sample (three different classes) was carried out. The only selection criterion was the selected concept of Music Education in the given classes.*
- Before experimental teaching commenced, several hypothetical questions were raised. Answers to these questions at the end of the work were to confirm or refute some claims, made on the basis of previous nine years of experience with application of ethnic music in Music Education at a grammar school, i.e. also bring conclusive evidence to support or negate the introduction and application of the said experimental teaching.
- *Informative input data was obtained through an Input questionnaire. The same version of this questionnaire has been presented to students since the teaching of ethnic music commenced (nine years). The input level of students' music experience and skill is determined through this questionnaire, inclusive of their attitude to the subject so far, and the related contents and activities (a reason for selecting Music Education). Students also state their expectations of Music Education lessons. The responses of the Input questionnaire analysis already pointed to the difficulties and considerable disparity of a team, consisting of classes, joined together based on a directive (Sample 3). This information was also confirmed in the characteristics of individuals and the class.*
- *All classes were taught by one teacher (Mgr. Štěpánka Lišková). They were classes that met this teacher for the first time!*
- *The course of all lessons was recorded in writing (Š.L.), some parts of the lessons were documented based on non-participant observations (doc. M. Slavíková),whereas some activities are documented in the form of video recordings.*

[23] PELIKÁN, J. *Základy empirického výzkumu pedagogických jevů (Fundamentals of Empirical Research of Educational Phenomena).* Prague: Karolinum, 1998. p. 34.

- *At the end of the entire ethnic music block, which includes the topics of SSM and ICM, data demonstrating the effectiveness of the said procedures on acceptance level of the selected ethnic music topics was repeatedly recorded through an Output questionnaire (since 2002).*
- *The given phenomenon (teaching ethnic music) is empirically and systematically investigated since the beginning of this experiment (2002). According to results of the annual investigation (especially participant non-structured observation, cumulative cards, Input and Output questionnaires), there are changes in the order of topical areas, the selection of specific contents as well as integrating individual activities.*
- *This teaching is experimental. According to the findings of Š. L., other grammar schools in Plzeň (five state grammar schools + grammar school Rokycany, Blovice) do not include ethnic music in the curriculum. GFK students have so far accepted the new curricular contents and activities in a positive manner. Valuable pre-experimental data is, at the least, partially recorded in writing in the above mentioned thesis by M. Vránová.*[24] We can assume from the research results by D. Novotná[25] and her incentive to expand the contents of Music Education with ethnic music that it is not a completely common part of grammar school education in the Czech Republic.
- In order to render an overview of the results of Music Education experimental teaching, methods of qualitative and quantitative research were used (so-called mixed research – Input and Output questionnaires, lesson description and assessment, quantification of some data, evidence of non-participant observation…).
- During collection and sorting of material for the theoretical and practical parts of the dissertation, and while compiling the lessons, as well as during teaching, theoretical (analysis, synthesis, induction, deduction, system modelling and historical comparative method) as well as empirical (observation, experiment, interviews, questionnaires, listening tests) research methods were applied.
- *Records from SSM and ICM lessons ultimately bring information especially valuable for qualitative research (answers to questions in a questionnaire, change of climate in classrooms, possibilities of field integration of activities, etc.)*

[24] VRÁNOVÁ, cit. 9.
[25] NOVOTNÁ, cit. 4, p. 74–83.

Doubts about implementation of the proposed activities in all parallel classes only emerged (they are captured in the hypothesis) in association with research sample no. 3. Illustration of Input questionnaire analysis for this sample:

Overall information about the group (Dissertation – chap 6.2.3 Sample 3: joint classes – class five and class 1.A = class five of the eight-year programme and class one of the four year programme, p. 172–175)

Input information: disparate group of nineteen members, which was joined based on a directive due to small number of Music Education students in both the said classes. Teaching was always carried out on Thursday afternoons, from 13:55 to 15:30. Data from the Input questionnaire already suggested that it will be a very problematic social group.

– Annex J/5: Sample 3: class five and class 1. A Input questionnaire (additional material for the dissertation)

Input questionnaire was filled out and given back by 13 out of 17 students (only two did not attend the Music Education lesson!). Most comments were anonymous (authorship confirmed in 4 cases). A positive attitude to music was the reason for selecting Music Education only in six cases! In the remaining answers, students were particularly negative about the second optional subject, Arts Education. One student stated that he opted for Music Education to confront his experience with the teaching of Music Education at his previous school. He had to re-sit his exam there and was marked as grade 4. Previous disagreements with his music teacher even prompted him to transfer to a private grammar school. Only 4 students had no experience with learning how to play an instrument, others stated various levels of skill with instruments. However, in four cases the learning was only short-term and the respondents doubted its benefits. When asked what activities did they previously enjoy, they mostly stated singing (5x) and listening activities (6x), followed by relaxation with listening, and reports and theories of various musical genres. However, answers in this category also included "doing nothing", "when the teacher did not show up" or other comments expressing negative attitude towards this subject, which again pointed out that the given social group would be problematic. In the category of "boring activities in Music Education", students most frequently stated the history and theory of music (5x), followed by singing (4x). In several cases, this part was left blank; two answers displayed exaggeration and mischief ("everything else", "making fun of the teacher"). In one case

there was negative personality evaluation of a previous music teacher. The fact that the given Sample 3 will be problematic was also pointed out by the answers to a question: what are the students expecting from their lessons? In six cases they stated "nothing"; other answers also did not prove a great degree of activity and positive approach to musical activities ("wasting time, peace and quiet, lots of sleep, easy lessons, no effort…"). Students expected that Music Education will be mostly fun (4x); only in two cases did they expect a positive approach from the teacher ("understanding" and "a nice teacher"). A negative point to be mentioned was the fact that 4 questionnaires were deliberately not returned, even though they were repeatedly asked for. It should also be mentioned that two students who left their previous grammar schools for inadaptable behaviour, and one GFK student who repeated a year, were also included in this joint Music Education class. The introductory input information, acquired through a questionnaire, already made it clear that the likely focus of the teacher's work would to a great extent be in the behavioural area!

Experimental teching desrciption

Experimental teaching at GFK is introduced with brief characteristics of the actual place of work (Dissertation – chap. 5). Distinctive specifics of the school are explained (different forms of students' assessment, specific school clientele, support for creative activities of teachers, functional cooperation within the teachers' team…), which to a great extent also impact the concept of Music Education. In order to introduce the conditions for the experiment, the issue of Music Education subject at GFK has been briefly described (time and organizational limitation of the subject and its integration into school activities, the issue of constant teachers' turnover). In connection with incorporating ethnic music into the Music Education curriculum, changes brought by this new concept are defined. More stable selection of integrative musical activities, repeatedly appearing in Music Education lessons in relation to ethnic music was made over a period of nine years. Activities' selection is creatively supplemented and modified according to the specifics of individual classes (forming an Indonesian orchestra and playing to be this orchestra, attempts for overtone singing, graphic records of archetype music – music of Australian Aborigines, etc.). Integration of the half-year ethnic music block (part of which is SSM and

ICM) into higher classes of grammar school is based on the following major arguments:

- ✓ psychosocial maturity of students from higher classes: Students are interested in new topics and they can concentrate on a given topic better and for longer, previous antagonistic attitude between girls and boys is gone now.
- ✓ new topic: Students from various schools with different initial level of music knowledge were enrolled in year one. Ethnic music is new for all students.
- ✓ possibility to joint classes with less students: Integrating a new block of topic enables joining classes of the eight-year and the four-year programmes, which often consist of a low number of students = it is a novelty for both classes. Unknown topics and related activities help in integrating disparate classes.
- ✓ eliminating the concerns of students who did not go through more intensive music education (Art Schools – "ZUŠ") , related to confronting their knowledge of music and experience with music with their more erudite classmates: When new attractive topics of ethnic music are introduced (a novelty for everyone!), even students with little music experience participate without much apprehension in discussions and unfamiliar activities. Students, who are musically more advanced, often help to lead in the activities. Their creative potential can, therefore, be used e.g. in the strategy of leading teamwork activities.

Records of lessons on SSM and ICM (Dissertation – chap. 6) mainly brought a) evidence of implementing the recommended areas of activities and b) also provided confirmation about appropriate use of a topic (SSM) towards correcting and building more satisfactory social relations inside a disparate social group (Sample 3)! As Sample 3 was rather problematic, it was continuously on the platform of ethnic music to handle problems pertaining to behaviour – socialization. SSM and related activities played a key role in this process. Probes into Music Education lessons with elements of SSM and ICM provided a very authentic record of the course of lessons in line with previous years, with the pros and cons that come with this largely variable process. The dissertation includes a) more detailed records of lessons, which are shown in well-arranged tables followed by commentaries and b) abridged records.

Experiment results (Dissertation – chap. 6.5.1, 6.5.2, chap. 7)

Records of lessons as well as the related documentation (descriptive records, audio recordings, images and video recordings) provided substantial and additional data (Dissertation – chap. 6.5), which when summarized and compared provided the required groundwork for final assessment of the entire experimental teaching process. Well-arranged tables were created for easier comparison of teaching results in individual classes (Dissertation – chap. 6.5). The tables primarily collect evidence about integration of musical activities in individual lessons, especially in relation to the proposed models of activities (compared with chap.4, with proposed models SSM and ICM).

Example of tables:

Summarized comparative tables for application of SSM to Music Education teaching:
Sample 1: class six of a multi-year grammar school

Table 4: SSM in class six

Date:	**4.12. 2008**	**11.12. 2008**	**8.1. 2009**	**15.1. 2009**	**Models used from chap. 4. 1. 1 – 4. 1. 6**	**Teaching methods**	**Assessment methods**
Singing activities	ü	ü	–	ü	Section C/ Option 1 b) The song Hallelujah– transfer to Afro-American music Section F/ Option 3 b)	Interpretation Discussion Demonstration of skills Group teaching Cooperative teaching Problem-solving method Group presentation …	Listening test Continuous evaluation Demonstration of skills Self-evaluation Group and individual presentation …
Listening activities	ü	ü	ü	ü	Section D/ Option 1), 2) Section F/ Option 1), 2) The song Singalana Section C/ Option 1 b)		
Instrumental activities	ü	ü	ü	ü	Section B/ Option1), 2 a), 2 b) part, 2 c)		
Physical activities	ü	ü	–	–	Section E/ Option 3), 5) Section B/ Option 2 a)		

Table 5: SSM in class six

Date:	**4.12.2008**	**11.12. 2008**	**8.1. 2009**	**15.1. 2009**
Other activities	–	Section A/ Option1)	Video recording of Balakulandyan	Listening test

A comparison of data from all classes (Sample 1–3), for example, showed that despite Sample 3 being difficult, most proposed models of activities were implemented. A difference only occurred in the degree of students' efficiency devoted to specific activities, and time, which had to be allocated for such activities. In Sample 3, music therapy techniques, only remotely related to the topic of SSM, were deliberately used during initial lessons in order to unite a class, which was otherwise disparate. For the same sample, topics from SSM and ICM were not the only contents of the two-lesson teaching units. In this class, singing of popular songs from available songbooks was regularly included in the category of singing activities. A comparison of collective data from all three observed classes concludes the following summary:

Topics from SSM and ICM were successfully applied in all three experimental classes! Students acquired theoretical knowledge through dynamic activities, appropriately compiled and selected especially for this purpose. The topic of SSM and ICM can be used to integrate all musical activities and is implementable in higher classes of grammar school under appropriate conditions!

Records of lessons already brought a number of partial answers to the preliminary hypothetical questions, raised when teaching began (Dissertation – chap. 6.5.2). Important groundwork for summarizing results was also covered from the Input questionnaires. The questionnaire included five open non-structured questions designed to invite the students to giving a deeper thought to the alternative contents of the subject. Students individually, and from various perspectives, contemplated over the broader contexts of the relation between Man and music. Individual students' answers also brought valuable information about their attitude to the subject with such concept and presentation of alternative contents and pointed out to their overall attitude and affinity to their own culture. Summary tables, containing students' answers, are part of the additional material to the dissertation. These are materials valuable for subsequent overall assessment of such concept of teaching. In context with the initial

hypotheses, answers in the Input questionnaire (data quantification) and other experience with integrating ethnic music elements into teaching Music Education (internships abroad, teaching students at the University of West Bohemia in Plzeň, teaching activities), the following can be stated:

- ✓ Alternative contents of the Music Education subject as well as the manner of its presentation apparently made a positive impression on the students.
- ✓ Ethnic music topics were found to be pivotal for implementing integrative musical activities.
- ✓ The compiled units of ICM and SSM can be implemented independently as well as within a block of ethnic music. The unit of SSM was implemented independently during an internship in Slovakia within two two-lesson teaching units at the universities in Trnava and Ružomberok. Both outputs resulted in a positive response.
- ✓ Most proposals for the recommended activities were successfully implemented.
- ✓ In competition with other topics from the area of ethnic music, the topics of SSM and ICM were clearly dominant. Students were positively intrigued by both topics, which is documented by the fact that they are more frequently stated as performed activities.
- ✓ The research results also brought a valuable piece of knowledge that in contact with non-European music, our own culture was promoted! Before a subsequent block of European music was started, opinions of individual classes to the question: *"Do you thing it is worth keeping our traditions?"* were ascertained. It is heart-warming to see that as it results from the total sum of students' positive answers, the majority of them feel and state the need to maintain national culture!

Example of student's answers to a question related to national identity: Dissertation: Part of Annex N/2 Output questionnaire – Sample 2 = summary tables of students' answers:

Output questionnaire – Sample: 2 2. A **date: 02. 04. 2009**
Number of respondents: 10 (4 absent)
Is it important to maintain our tradition (i.e. sing our folk songs, maybe even the new way – Čechomor band, etc….. and to learn about Czech composers of even popular music? Why? Why not?

Tomáš	"It is good for the future generations to know something about their ancestors. As far as popular music composers…..one should take interest in them if it is to his/her taste. Authors such as Smetana, Dvořák….a Czech person should have at least some primary knowledge."
Vláďa	"I think so. We know about music of other countries but we did not study Czech music. That is wrong."
Ivana	"Absolutely, I missed this. A definite yes. It is important to know about other cultures, but it is even more important to know about our own culture."
Karel	"Why deny Czech music when Czech Republic is where we are living. I would not worry about folk songs as much; Czech composers should have their place in Music Education lessons. The important thing is to balance all types of music."
Linh	"I do not think it is important to memorize Czech composers. We should just "know" about them, be aware of them. These are the roots of our culture and we should not forget it."
Sabina	"I think everyone should know our songs. It may not be to everyone's interest, but I myself cannot imagine life without music."
Zuzka	"Yes. Yes, in order to preserve something from the Czech culture, something close to us, because American music is not ours."
Aneta	"Yes, because that way we can find out on what principles are based the playing of various music."
Oto	"I would orientate towards Czech and Moravian music as well, Čechomor is a super idea. I do not know whether to study classical music composers. More like when students are in a gang of buddies, sitting by the fire, where songs are sung, they should not be all flipped out by it. They should be able to participate."
Kristína	"Yes, it is important, otherwise our traditional music would be lost and our children would not even know what it is. It also depends on one's interest. Some people may not be into this and do not even want to be. But every Czech should have some idea about it."

The fourth open question of the Output questionnaire: "*What do you remember the most from the entire half-year? Be brief.*" invited students to give answers freely. The objective was to find out whether the topics of SSM and ICM are amongst the stated activities more frequented than activities related to other topics. Students stated the topic of ICM = India (or reference so this subject – Hinduism, unusual musical instruments – sitar,

etc.) in total 19 times (63% of total number of students – 30 respondents), SSM = Africa 14 times (47%), which is a high percentage, owing to the competition of twelve topics. The final number could have been even higher but some students took a more complex approach to the answer (songs, cultural knowledge, playing the drums). The hypothesis that these topics would be stated more frequently was confirmed.

When comparing the learning outputs of teaching SSM and ICM (and thereby of the entire concept of including ethnic music in the teaching of Music Education) with the requirements of curricular documents (FEP) for the educational area Art and Culture (chap. 7), the following can be further stated:

- ✓ Alternative contents for Music Education are not in conflict with the target focus area; on the contrary, **it corresponds with it and fulfils the documents by means of creative integrative activities. Both selected topics fulfilled the respective mandatory outcomes of a music subject of mandatory integrative topic of Arts and Culture, and in some aspects also of the cross-sectional areas of FEP** (in particular Multicultural Education, Personality and Social Education, Education towards thinking in European contexts and partially also Environmental Education and Media Education). The dissertation includes ample evidence on the performance of these objectives.

For example: (Dissertation chap. 7, new concept in education in context with the dissertation topic – text extract)

- ➢ According to the outputs from FEP, we are supposed to guide students e.g. within instrumental activities towards active use of musical instruments during collective as well as individual playing. In this concept, a musical instrument is to become a tool of self-fulfilment for everyone. A student should be able to express certain musical and non-musical ideas, emotions, etc., through musical instruments. And even in this case I have no choice but to state that the required instructions on how to proceed towards fulfilling these outputs in relation to SSM and ICM units, as well as evidence of their successful fulfilment, are included in this concept. Students are using ethnic instruments to play polyrhythmic patterns (in both SSM and ICM), they reflect their emotions in small musical compositions where they try to express

some principles of ICM (teamwork with rasa = expressing nine basic emotions in ICM).

- Students are also to be encouraged towards learning about specific communication systems of various cultures and to compare them. In the context of topics of SSM and ICM, these were often not only musical but broader contexts.
- Students are led to perceive the incompleteness of an artistic process and to understand the fact that every "musical piece" can be perceived as inexhaustible in meaning.

Example: When listening to ritual music (the Pygmies, but also Tibetan, Japanese monks – comparing, looking for idioms), students try to determine what function is the music related to. In reflection to the sounding music, only certain characters of ritual music (repetitions of magical formulas, urgency, escalating expression) are found; however, a full meaning of a secret ritual cannot be revealed. Furthermore, these experiences are not quite adequately communicable by words…

- ✓ All types of activities took place within the lessons: singing, listening, instrumental as well as physical activities. Through these activities, students were acquainted with some music principles found in modified form in European music (multi-layers in SSM and ICM, the principle of resonance and creation of musical instruments, working with emotions in ICM, improvising within the limits of ICM rules, minimal patterns in SSM – pattern system…).
- ✓ More complex approach to the concept of music is also directed towards fulfilling the objectives of a cross-sectional area of art and musical field Art Production and Communication. The dissertation states specific examples on how are they fulfilled.
- ✓ Records of lessons nevertheless also brought evidence about fulfilling the overarching aim of FEP, the so called key competencies (Competence to teach, to solve problems, communication, social and personal, civil and personal competencies). These categories are also documented with examples:

For example: (Dissertation chap. 7 new concept in education in context with the dissertation topic – text extract)

Communication competencies: These competencies were applied especially during teamwork, when performing tasks (verbal communication when arranging the procedure for solving a task – creating models, seeking procedure in solution; non-verbal communication through musical activities – e.g. in SSM in playing a collective rhythm, gestures – mudras in ICM; discussions during presentations and reflections of musical activities…).

Competencies to solve a problem: As part of both units, students independently solved several tasks (ICM – selecting appropriate instruments to express given emotions, seeking their own procedures and verifying them through reflection with remaining groups, SSM – disintegration of a collective rhythm in a "troublesome" class and finding a correct process for the solution; seeking an effective connection between the unit of SSM and Christmas in Sample no. 1, class six…).

Social and personal competencies: Throughout the activities, students were guided towards mutual respect (Sample no. 3 – handling the issue with socialization of individuals within a class through musical activities – self-correction of undesirable behaviour; Sample no. 1 – SSM – when practicing Balakulandyan, students themselves helped their classmates whose musicality was less developed…).

Learning competencies: When solving assigned tasks as individuals and especially within teamwork, students themselves planned their work process, i.e. they divided roles within their group. Everyone had the opportunity to apply their own level of invention within the activities. They brought their own experience and skill (ICM – own instrumental accompaniment of mantras by a student – Sample 2; student Peter played tihai on the xylophone = Sample 1, etc.). Progressive sequencing of activities, from easier to the more complex, guides students towards becoming gradually independent in their own musical creations.

Civil competencies: The presentation of both units (SSM and ICM) could, to a certain extent, contribute to better understanding of the spiritual as well as cultural values of humanity. Promoting cooperation within their activities and seeking effective methods for their implementation guided students towards conscious understanding of collective belonging, to correcting their own individuality for the benefit of the whole team, and through collective performance (class six) at a school Christmas concert also to widen the presentation of this cooperation. Apart from actual overlapping contents of Music Education, it was also a visit to an exhibition

Music of the Ethnicum in cooperation with the arts field (Sample 1) that opened the path leading towards realizing and appreciating the cultural heritage of humanity. Holding discussions and activities within both the units lead to respecting the opinions and attitudes of others, naturally complemented by a reasonable level of argument on the part of discussion participants.

Entrepreneurship competencies: This field of competencies is entered within musical activities by guiding students towards asserting their own ideas, creativity and subsequent reflection of this activity. Students' creativity and their contribution to teamwork (pertains to the whole area of Music Education) is one of the most important criteria for mid-year as well as final verbal assessment of the subject.

Summary

When looking for arguments for expanding the education curriculum of Music Education with both stated units, SSM and ICM (and other ethnic music), a large amount of evidence demonstrating that this experimental concept is meaningful was established and duly verified. The stated changes correspond with the current education trends of the ongoing curricular reform, captured in the Framework Educational Programme for grammar schools.

Conclusion

The dissertation *Elements of Sub-Saharan music (SSM) and Indian classical music (ICM) in integrative experimental music teaching in higher grammar schools* is a pioneering work. It collects material that can be used by teachers potentially interested in alternative teaching of Music Education to compile and implement two-lesson and multiple-lesson classes of Music Education with elements of SSM and ICM. This priority task was fulfilled. Naturally, some questions, the importance of which exceeds the stipulated objective, surfaced in the background of the selected topics. They were mainly pertaining to the issue of actual innovation of Music Education curriculum. The evidence justifying the entire concept of experimental teaching, where ethnic music can have a permanent place, was sought and duly collected. And it is closer contact with both selected topics of ethnic music that is

leading me to believe that the presented concept of experimental teaching in Music Education has future. Owing to my long-term experience as a teacher, and in context with the dissertation research results, I take the liberty of concluding with a few statements:

a) Global approach to music found a way to connect individual areas of music, not just categorizing them.
b) Using the principle of seeking context between music production and life of Man began to melt prejudices, which the youth have towards accepting musical genres outside their area of interest. Teaching history of music thereby gained a whole new dimension and meaning.
c) Musical expression of cultures with no literature is unusual, attractive, and in some cases even more comprehensible, and opened a broader perspective to the world of music, i.e. to the manner how Man "plays" with it in various sociological contexts.
d) Activity-based teaching of ethnic music provided students with the required experience and knowledge, which in many ways makes future work in Music Education easier, particularly in the area of topics pertaining to development of artificial and non-artificial Euro-American music.
e) Today, students travel increasingly, even to far off countries. The lessons of Music Education make it possible (whether afterwards or in advance) for them to become more familiar with the music of a specific culture and to confront them with their own experience and knowledge. It is becoming increasingly more common for schools to have students whose families are originally from abroad (Vietnam, Syria, Russia, etc.). These students are usually very interested in multicultural concept of Music Education, where they can apply their knowledge. Even music from the country of their families' origin can become the contents of a teaching unit (Record of sample 2 in dissertation).
f) Contact with music of non-European cultures also brought deeper identification with our own culture!

Even in relation to this last key finding, I take the liberty to state that ethnic music (and thereby also SSM and ICM) will more and more frequently become part of Music Education. Interest in expanding the curriculum of Music Education with topics on SSM and ICM was confirmed during reflections in pedagogical internships at grammar school by students from the Department of Musical Culture at the Faculty of Education, University

of West Bohemia in Plzeň. Topics on ethnic music are gratefully accepted by future kindergarten teachers, adepts for life-long learning courses (musical therapy and teaching), as well as other alternative courses. I used ethnic music in creating and implementation of theatre performances where children with special education needs (Down syndrome – performance with actors from Prague theatres) take part. It is routinely integrated in the programme of GFK (teachers' performance at the beginning of a school year, school theatre, annual school ball, etc.).

This dissertation was planned especially with its further usability in practical teaching of Music Education in mind. The material from this dissertation is already the groundwork for my teaching activities and my courses, and the topics will remain to be the subject of further investigation. Contrary to my initial claim about the appropriateness of integrating ethnic music to higher classes of grammar schools, I have now collected considerable evidence about its purposeful integration to teaching at lower classes. I find this topic to be greatly pivotal for subsequent scientific activities. The overall concept of my dissertation can be an inspiration for those potentially interested in the elaboration of other topics from the area of ethnic and Euro-American music. At academic levels, it is helping to raise topics that can contribute to opening a path of more complex perspective to the whole area of Music Education. And if this somewhat detailed insight into two areas of ethnic music at least partially contributed to further knowledge and understanding of the phenomenon of human creation, then on this platform this activity was not in vain.

Summary of author's publication activities pertaining to the topic

[1] Hudba subsaharské Afriky (Sub-Saharan Music). In JURKOVÁ, Z.; HORÁKOVÁ, K. *Etnická hudba ve škole (Ethnic Music in School).* Prague: Multicultural Centre Prague, 2001. p. 64–66.

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[4] *Vzpomínka na Afriku (Remembering Africa)*. Slnečnica (Sunflower) extra Bulletin (a journal of a Slovak Down Syndrome Society). Media Group. Bratislava 2, 28. 01. 2006, p. 3.
[5] Jak zvolit téma disertační práce aneb začátek cesty doktoranda (How to Select a Dissertation Topic thus Commencing the Path of a Doctoral Student). In *Miscellanea Hudební kultura VI (Musical Culture VI).* Department of Musical Culture, the Faculty of Education, University of West Bohemia PLZEŇ, December 2006, p. 49–51.
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[8] Glosy k naší současné školské reformě – obavy a naděje učitele HV (Glosses to our Current Educational Reform – the Fears and Hopes of a Music Teacher). In *Miscellanea from an International Conference the Current Issues of Theory and Practical Music Education Today III* Ústí nad Labem: J. E. Purkyně University, Faculty of Education, Department of Music Education 2008, Cd–R, 3–8.
[9] Etnická hudba ve výuce hudební výchovy na vyšším gymnáziu (1. a 2. ročník čtyřletého a kvinta či sexta osmiletého gymnázia) (Ethnic Music in Teaching Music Education at Higher Grammar School – year 1 and 2 of the four-year and year 5 and 6 of the eight-year grammar school programmes). In *Miscellanea Inovace v hudební pedagogice a výchově k poctě Lea Kestenberga (Innovation in Music Teaching and Education in honour of Lee Kestenberg) (1882–1962): Miscellanea from International Musicology Conference, held from 29 November to 01 December 2007.* 1st edition Olomouc: UP, 2008. p. 229–234.

[10] Multikulturní princip v hudební výchově i terapii (Multicultural Principle in Music Education and Therapy). In *Miscellanea from International Conference on Ethno-education and Music Therapy Paradigms in Music Education, held as part of symposium for European Year of Creativity and Innovations in Ružomberok*. Trnava Faculty of Education, University of Trnava, 2009, CD–R.
(Category BIREP – AED – scientific work in reviewed miscellanea)

[11] Prvky hudby subsaharské Afriky (SSM) a indické klasické hudby (ICM) v integrativní experimentální výuce hudební výchovy na vyšším gymnáziu (Elements of Sub-Saharan music (SSM) and Indian classical music (ICM) in integrative experimental music teaching at higher grammar school). In FRIDMAN, Libor; AŠENBRENEROVÁ, Ivana. *Modernizácia hudobnej edukácie vo vzdelávacích programoch základných a stredných škôl v SR a ČR (Modernizing Music Education in Education Programmes of Primary and Secondary Schools in Slovakia and the Czech Republic)*. Bánská Bystrica: Faculty of Education, Matej Bela University, 2010, p. 92–108, CD–R. scientific monograph.

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