
Music and new technologies as specific language of teenagers

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Abstract. The formation of attitude on music of teenagers, differences and similarities of music, fine arts and media arts, influence of written text and new computer technologies on our visual thinking are analyzing in this article. There are analyzing music as a part of general culture, the importance of new technologies of music creation and retransmission towards a positive attitude to music of teenagers in this article. Music as a part of our social environment experienced a long and complicated way of development. Born as a system functioning on emotional basis and supplementing speech, it increasingly establishes itself on the list of bought/sold goods. Exceptionally intelligent approach to music and emergence of new technologies in the 20th century led to the formation of popular music genre and its wide spreading in the adolescent's list of values. For purpose to analyze influence of such situation on preferences of teenagers there is analyzing results of empirical research where participated 360 students of comprehensive schools of Lithuania. There is analyzing possibility of formation of specific music language.

Keywords: Music, New technology, Language.

1 INTRODUCTION

Teenage conception has always been controversial, and caused a lot of discussions. Even the psychological conceptions disagree on the beginning and the end of the period known as "adolescence.". Here S.Freud 's consider its beginning in the eleventh year of life, and E.Erikson's (Erikson, 2004) stage of adolescence includes 13-19 years. Anyway, this is the period causing the most difficulties for teachers and greatest internal and external conflicts for pupils themselves.

Adolescence, youth, and teenager are cultural constructions, or socially constructed categories, that have evolved in meaning and common usage in the last century. Only in the last fifty years has the term teenager, introduced by merchandisers and advertisers in the 1940s, meant anything at all to the U.S. public. Today we typically think of teenagers as people aged 13-19. By the 1930s, compulsory education laws and changes in the economy - especially the Great Depression, had finally pushed teenage youth out of the workplace and into the classroom. In 1920, 28 percent of American youths between the ages of fourteen and seventeen were in high school; by 1930, 47 percent and by 1936, 65 percent of this age group was attending high school (Walker,2007).

Adolescence is the period when the growing human being is trying to figure out what he/she is, what he/she seeks, when the inclinations having dominated in childhood turn into human needs and interests (Выгодский, 1984). A huge impact on adolescent behavior has J.Piaget's emphasized puberty-characteristic self-monitoring, self-evaluation and other's evaluation trend. Teenagers, constantly comparing themselves with their peers and other members of society, learn the rules of life. Particularly striking collective activity (or being in a "group") desire shapes not always recognized by the society "right" attitudes to some music genres or ways of expression. For him/herself it is sometimes more important to express through music

"the truth" instead of "the beauty." Therefore, the adolescent beauty "canons" are often different from the public ones. In this case, teenagers do not necessarily doubt the sincerity or understanding of the others, they simply consider the possibility that there may be something else, what is also true, or there may be another way of seeing things, problems, and relationships. Having escaped from the influence of his parents teenager wants to take on more and more peer values. This greatly affects the whole teenager's social life, so some authors tend to talk about the teenagers as a specific separate society, peculiar culture and language (Žukauskienė, 2007). Music and new digital technologies can be identified as particularly vivid medias for teenagers' self-assessment and self-expression.

2 MUSIC AS AN EXPRESSION FORM

Man like universe is made up of regular and irregular vibrational frequencies, thanks to which we can live in cohesion from cell to tissues, organs and mental functions. We would not survive without own "sound": our psycho-physical organism functions interact only thanks to our sound "constant propagation" ... (Кирн, 2008). So music, art, based on sound and silence structures become a natural medium for our stay. However, since ancient times, the question remains unanswered: what should be the music.

What do the music of Bach, Depeche Mode, and John Cage fundamentally have in common? On the most basic level, what distinguishes Busta Rhymes's "What's It Gonna Be?!" od Beethoven's "Pathetique" Sonata from, say, the collection of sounds you'd hear standing in the middle of Time Square, or those you'd hear deep in rainforest? As the composer Edgar Varese famously defined it, "Music is organized sound" (Levitin, 2007). It is obvious similarity between language phoneme perception and musical pitch and interval perception. In both music and language it is discovered that our ability to use categorical perception enabling perceivers to place individual speech phonemes and musical sounds within an expected category of the language or music system they know, even though the physical reality of the respective sounds of speech and language not conforms to theoretical norms. Sound is the material to construct all music. So what led to the fact that we now have academic music, and in many cases there is an alternative - pop music? We would like to mention that arts, natural sciences or technology do not have such an alternative, clearly expressed in the teenagers' list of preferences.

Young people today spend anything between three and five hours every day of their lives listening to their favorite music, usually on headphones, and most often in their bedrooms. This fact is important for music educators, because listening to one's favorite music is motivated by the experiences one has had (Walker, 2007). Such experience induces activity in the same direction, preventing from formation of holistic worldview.

Western music development features intellectualism. Such intellectualism, stemming from the ancient Greeks, has been the main inspiration of western musicians. The musical art of the West is, in fact, an intellectual art form. In western culture only "good" melodies and rhythms should be taught to young children, those which contain melodic and rhythmic elements promoting the ideal of the good and the noble. Judgments of this kind are to be made based on the ideal of perfect harmony implicit in the Pythagorean proportions and their applications to melodic and rhythmic elements.<...> Socrates explains that a solely gymnastic education causes savagery and a purely musical education causes softness" (Levitin, 2007). Music is not taught for its own sake as musical art, but rather for its important role in exemplifying in sound and time the perfect harmony to be found in all good and noble things, explainable through number, and implicit in the perfect proportions which form the Tetraktys, the "basis of the legendary oath of the Pythagoreans" (Stevens, 1986).

But our thinking is more visual than audial. It is natural that music industry is constantly looking for visual explanation of what at first sight should be seen only by hearing and

emotions. The obvious step towards such understanding is the changes in the music industry after 1789's French Revolution. Previous elitist art had to become understandable and more accessible to everyone, it disclosed its visual spring, freed tracks pace, the music became more dynamic. Conveying music thought invoked visual art measures. In this way classical music increasingly acquired the features characteristic to popular art.

Prior to the age of increased travel opportunities and communications, popular culture was a localised affair (Scott, 2000). However, popular culture during the last half of XXs century became very widespread and ubiquitous, and more international rather than national or localised. From the late Renaissance and ever since, art musicians have been travelling all over Europe, and beyond, learning about and absorbing different styles from those they grew up with, often fusing them into new, more internationally acceptable forms. In contrast, popular music is at once international today because of the power of the broadcasting media and the internet. Local markets for popular music exist, of course, and many performers travel widely across their own countries performing to local audiences. The international pop scene provides an overarching influence over local activities in ways which have never occurred prior to the twentieth century communications explosion.

With regard to the visual perception prevalence, one cannot fail to mention that in 1148 Gutenberg invented the printing press. Thanks to it, especially prevailing printed word more and more replaced the former audial, holistic understanding with the visual one. The latter feature is common to many forms of art, so here you can talk about transdisciplinarity as well. Music has always been interdisciplinary; it has also always been influenced by technology, although at times in the sense of technologies that do not have to be plugged in. Music has also often been part of interdisciplinary art forms involving text, acting, and movement. (Landy, 2007).

3 NEW TECHNOLOGIES: VISUAL, INTELLECTUAL AND AUDIAL SYNTHESIS

Undoubtedly, the end of the 20th and in particular the beginning of the 21st century can be called the new era of digital technology boom. For many young people this era of technology is comparable to their own life expectancy. Therefore, technological solutions, accompanying young man since the very beginning of his life are like natural and inseparable from the daily routine. This approach leads to not only the continuous use of technological products, but also develops a new generation of artists. For the teens the technological phenomenon becomes particularly important. It as if separates the young from the older generation, for which technology was often terra incognita, and becomes a kind of communication and language form.

Technology developers always wanted the music, while listening to the playback device, to sound as well realistic, like listening to it in the concert hall. Most of the twentieth century music streaming was available from only one source of the sound: radio, recorder, speaker and so on. Therefore, listening to orchestral music was quite distant from the actual band sound. Quite a significant step was taken in the second half of the 20th century, when stereo audio playback system was introduced. This system had the possibility to broadcast the same piece of music on two channels (two different speakers) and to create the listener the illusion that some of the listened musical information sounds in the space, located between the speakers. Further steps forward were taken by creating a 3D (three-dimensional) audio playback systems which were able to allocate the segments of the listened piece of music so that the listener perceived it like sitting in a concert halls or even in the middle of the orchestra, that the sound sources (specific musical instruments, singers, etc.) seemed allegedly arranged around listener, regardless of whether listening through speakers or through headphones (Gardner, 1999).

Audio recording and playback technology is characterized by a rather tortuous and difficult path of development. Its start can be deemed the emergence of the phonograph. Phonography was associated with a number of crucial developments, added another player to older discourses and practices based on musical technologies, and when it pointed more toward the production and not the reproduction of music, phonography necessarily invoked the world of all sounds. The pressure of worldly sound brought to bear on musical practice was exacerbated in the 1920s with the marked development of auditive technologies and institutions – particularly improvements in microphony and the phonograph and the development of sound film – as practiced within music, radio, and cinema. It was within this complex that dramatically new approaches to sound began to materialize (Douglas, 1999). Music-making has evolved rapidly from systematized control systems of old to where digital technologies now empower musicians and audiences to make their own judgements, if necessary, to reject divisions of labour and the assertions for what constitutes ‘truth’ or ‘quality’ by big media power agencies (Benkler 2006; Lessig, 2004).

Now artists interact both directly and virally, while attending to a new economics of attention to launch and support independent careers.

One of the most significant discoveries of the digital area, having impact on communication and creative expression of the teenagers is Internet and its opportunities. Internet streaming media technologies currently propose several methods of data distribution. Uni-cast media streams are directed from one point to another using the Internet as a transport mechanism and are useful for relaying a media stream between two computers in a closed or metaphorically private fashion. Recent developments from service providers such as Skype or MSN Messenger, offer readily available, easy to use technologies, adaptable to a range of participants and a variety of networks. Multi-cast media streams are generally made publicly available and offer potential for multiple connections to a single media server. Anyone with a computer and Internet connection of relevant capacity can access a multi-cast media stream from its point of distribution. Multi-cast streaming media technologies are inherently public. A range of open-source and proprietary technologies such as QuickTime streaming server, Shoutcast and Real Networks Helix Server provide support for multi-cast web streaming. This principle division between media distribution models provides a useful framework for acknowledging point-to-point and broadcast based models of Internet based media activity. It is possible to use Internet streaming media technologies to appropriate a range of media production relationships within established and emerging models of group based creative and educational art and design practices. Recent acceleration in the availability of network bandwidth and the increasingly efficient operation of Internet software and hardware have provided fertile ground for both contemporary artistic exploration and for the development of art and design research, teaching and learning activities.

English language can also be called the language of adolescents. In 1991, the year after the collapse of the Soviet Union, Lithuania and the public schools encountered the matter of choice of foreign language. Russian language which prevailed as the foreign language, was associated with negatively evaluated former ally Russia. The same approach formed towards the Russian language. Other prevailing language, dominating in the scientific, methodical, popular literature, mass media, software and hardware descriptions was English. It would have been an easy choice. There is no lack in technological literature presented in English. You can always find a computer literacy and musical computer technology manuals for musical compositions and sonic art creation computer schools and so on. Considering that adolescents from an early age are in contact with the English language or its fragments, and the fact that they desire to have a characteristic language form, which the elders do not understand, even if they are fairly mastered, acquire the character, distinguishing them from the public.

4 METHODS, PROCEDURES AND RESULTS

In order to determine the impact of foreign language skills, musical awareness, management of technology, media-broadcasted audio and visual information makes upon our preferences, and to assess what are the differences of such impact, depending on the listener's age, an empirical study was carried out. It was attended by 360 respondents from Lithuania: 56 art teachers, 108 students of Siauliai University and 196 fourteen-eighteen aged pupils (91 from 7th form and 105 from 11th form) from five schools in Lithuania.

The study instrument was made up of four blocks. In the first block, the respondents were asked about their age, sex, music and computer literacy and activity.

In the second study block the respondents had to listen to 30 expert method-selected pieces of different styles of music (25 s each. Pieces of music was evaluated by 12 experts), to name its style, author or artist and to assess whether they and like it or not.

In the course of implementation of the third block, the respondents were demonstrated 20 Lithuanian television and internet commercials broadcast excerpts (40s each. They were demonstrated with the help of Adobe Audition computer program, showing the exact ad display time), asking to note the exact time of audible sound structures, musical excerpts, text phrases and logos used by the respondents in their mobile phones and computers, communicating in virtual space and so on.

In the last part of the survey the respondents were shown 25 different photos of technological equipment used in everyday activity, asking to describe in writing the basic functions of the device. Test lasted 35 minutes in total.

The results were processed using SPSS computer program. The results of nominal scale was calculated by using percentage. Statistical methods applied for range scale are presented in Table 1.

Table 1. Exploration of statistical values (Pukėnas, 2011)

Index	Meaning explication of index
Mo	Mode - The number that appears most often in a set of numbers.
M	Mean - The arithmetic mean of a sample
SD	Standard deviation - shows how much variation or "dispersion" exists from the average
R ²	Coefficient of determination - The proportion of variability in a data set that is accounted for by a statistical model.
p<0.05	Level of significance - The probability of a false rejection of the null hypothesis in a statistical test.

In the study, slightly more women participated than men. This resulted due to some disproportion in only teachers' list (82 % women). However, since teachers represent only a small part of the overall sample (16%), the total survey sample (*DataSet*) concerning gender was homogeneous enough.

Compared students' and pupils' music and computer activity, the difference was also statistically insignificant ($p < 0.07$). However, in terms of students' and pupils' music and computer activity, there was found statistically significant difference in the performance stability ($p < 0.01$). Older pupils' after-school arts and computer activities is more like that of students than of younger pupils. This shows a fairly significant change in preferences in this age.

In assessment of the second block of students and teenagers it is rather surprising that there is no material music recognition and estimation difference found ($p < 0.76$). Based on the results

it can be said that music awareness is stronger promoted by reality of life in which both adolescents and students are equally active, instead of teaching materials in school. However, it was noted that the student's musical preferences are less diverse (SD-0,67) than teenagers' (SD-1,16). This limits students' searches and allows teens to improve.

Analysis of the results of the third block found statistically significant correlation between respondents' age and impact of the mass media information. ($p < 0.006$). The best users of this information appeared to be the 7th formers. Very similar results were obtained in evaluation of the fourth block results. Teens assessment features both diversity and depth, so you can not say that their daily activities in this field is shallow.

Unfortunately it was lack of exhaustiveness of describing of technological equipment used in everyday activity of teachers. Range scale of five dimensions was used in the process of evaluating of answers of respondents. Results of such evaluating are presented in Table 2

Table 2. Results of research after expert evaluating (N=360)

	7 grade students		11 grade students		Students of University		Teachers	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Musical and computer literacy and activity	2,12	1,24	2,81	1,03	3,3	3,0	4,02	3,89
Quality of the musical preferenc	2,8	1,16	3,06	0,67	3,05	0,62	4,18	0,4
Usage of media signs	4,13	0,98	3,56	1,15	3,8	0,97	1,88	1,26
Knowing of technological equipment	3,95	0,58	3,67	1,04	3,64	0,52	2,42	1,15

5 CONCLUSION

Referring to the analysis of scientific literature and research results presented above, we may state that:

- everyday language of teenagers as a newly formed social group is determined by mass information means but it is not an elemental process. In comparison with other social groups, teenagers more actively observe, analyse and critically use sound and visual information;
- teenagers are mostly influenced by the closest environment, therefore, even indirectly alongside the international symbols they are using national ones;
- students and especially teachers tend to “attach” themselves to the used technological processes. It is convenient but it prevents the cognition of the new. Frequent change of teenagers' preferences as well as knowing what is interesting at present moment help to know themselves better and acquire what is new.

References

- Erikson E.H. (2004). *Vaikystė ir visuomenė*. Vilnius: Katalikų pasaulio leidiniai.
- Walker R. (2007). *Music Education. Cultural Values, Socail Change and Innovation*. Springfield: Charles C Thomas Publisher LTD.
- Выгодский Л.С. (1984). *Собрание сочинений в 6-ти т.* Москва: Педагогика.
- Benkler Y. (2006). *The Wealth of Networks: How Social Production Transforms Markets and Freedom*. Yale University Press.
- Brown A. (2007). *Computers in Music Education*. London: Routledge.
- Douglas K. (1999). *Noise, Water, Meat: a History of Sound in the Arts*. Massachuset: MIT Press.

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- Žukauskienė R. (2007). *Raidos psichologija*. Vilnius: Margi raštai.
- Кирн П. (2008). *Цифровой звук*. Питер: Вильямс.
- Levitin D. (2007). *This is your brain on music. Understanding a human obsession*. London: Ormond House.
- Stevens J. (1986). *Words and music in the Middle Ages*. Cambridge: Cambridge University Press.
- Scott D. B. (2000). *On music hegemony*. In *Music, culture and society*. In D.B. Scott (Ed.) Oxford: Oxford University Press.
- Landy L. (2007). *Understanding the Art of Sound Organization*. Massachusetts: MIT.
- Gardner W.G. (1999). *3D Audio and Acoustic Environment Modeling*. Wave Arts. Arlington.
- Lessig L. (2004). *Free Culture: How Big Media Uses Technology and the Law to Lock Down Culture and Control Creativity*. New York: Penguin Press
- Emmerson S. (2007). *Living Electronic Music*. Aldershot: Ashgate.
- Larsen E., Aarts R.M. (2004). *Audio Bandwidth Extension. Application of Psychoacoustics, Singnal Processing and Loudspeaker Design*. John Wiley & Sons.
- Pukėnas K. (2011). *Kokybinių duomenų analizė SPSS programa: studijų knyga*. Kaunas: LKK.

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