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DEVELOPMENT OF MUSICAL CREATIVITY OF HIGHER CLASS PUPILS USING MUSICAL COMPUTER TECHNOLOGIES (MCT)

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Abstract

Purpose *– to find out possibilities of development of musical creativity by using MCT in the music education of senior pupils.*

Design/methodology/approach *– literature review, qualitative survey methodology (interview with music teachers).*

Findings *– implementation of MCT, like any other innovation (as well as ICT) in different spheres of education, including pre-school education, bring forth a certain positive effect. The results of the interview showed that in the praxis of music education, MCT is used for different development purposes (to make a lesson original, help pupils memorize music, expand their imagination not only by listening, but also by watching and evaluating performance of music, listen to music recordings, understand music and evaluate its quality, etc.). But for the development of musical creativity, MCT has been used very poorly.*

Research limitation/implications *– musical creativity's concept has not been uniquely defined so far. The aim of scientific literature review is to show that musical creativity is not meant to be separated from general creativity. Moreover, this is compounded by the search of the possibilities to the development of musical creativity. Analysis of scientific literature shows that the use of MCT can make an influence on musical creativity. However, empirical researches on this subject are still missing.*

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Practical implications *– the results of the interviews about using MCT in music lessons in order to develop musical creativity could be significant in formulating strategies of the development of musical creativity, preparing methodological instruments as well as in teacher training programs.*

Originality/value *– the object of the survey in the chosen theme has never been explored in Lithuania, while the comparison of the obtained data with foreign scientists' discoveries could contribute to a musical creativity's definition.*

Keywords**:** *musical creativity, senior pupils, musical computer technologies.*

Research type**:** *literature review, interview review.*

1. Introduction

The development of creativity in the 21st century is becoming a more topical task not only in the public life, but also in different spheres of individual's activities: politics, economics, management, education, etc. It is a difficult task, as endeavor of the whole public must be connected in order that new generations of this century would take up knowledge and skills and, which is even more important, values and attitudes, ethical principles and moral guidelines. This would help to develop responsible individualities of the world, which would ensure corporate sustainability. Creativity is a key wide-scope issue in personal and public levels and different fields of the science.

The documents of the European Union state that Europe must enhance the potential of creativity and innovations. With this purpose, it is relevant to develop skills that would help to consider changes as possibilities, and to implement new ideas that induce innovations, and active involvement in the multicultural public based on knowledge. The following statement is declared in the notice on the communiqué of the European Commission: a broad-based innovation strategy for the EU innovations that the innovations without education lack a true base (Gierek, 2007). The educational system must develop talents from their early age and cherish their creativity.

Creativity is also realized as an important part in creating innovations (Cropley, 2009). TEBIPO and the statistical office of the European Union, EUROSTAT, defined the innovation for collection of data as "realization or process of a new substantially better product (good or service), new marketing method or new organizational method in business practice, organization of vacancies or external relations." (TEBIPO & EUROSTAT, 2005, p. 146, from: Villalba, 2010). Creativity may also contain no innovations; however, no innovations can be made without ideas of a creative generation. The model of the creativity process establishes a sequence, where in evaluating different alternatives that shall be approved if the innovation may be evaluated as a creative product (Cropley, 2009), thinking skills (ability to present many answers to the same issue) are very important. Since a repeated proclamation of the Lisbon Strategy in 2005, implementation of innovations has become one of the main supports for creating Europe

(Villalba, 2008a). The topic problem addressed especially is investment into a person facilitating his/her life-long study possibilities. Therefore, especially important and strict requirements are applied to the education, such as the following: "to help a person to perceive the modern world, to acquire cultural as well as social competency, to be independent, active and responsible, aspiring after and being able to study constantly, to create his/her as well as community life; to help a person to acquire professional qualification that corresponds to the level of culture and personal abilities, allow life-long studying possibilities, to satisfy cognition needs constantly, to achieve new competencies and qualifications that are necessary for the professional carrier and giving the sense to life; to ensure sustainable and based on knowledge development of economy, environment and culture, internal and international competitiveness of the economy, national security, development of the democratic state, and thus to enhance creative powers of the public; to warranty continuity of the culture of the nation and land, constant creation, retention of identity, to cherish openness of this culture" (Decision of the Republic of Lithuania regarding implementation of the national Lisbon strategy, 2005).

Creativity has been investigated in different aspects: as creative thinking (Beresnevičius, 2006), ability (Urban, 2000; Grakauskaitė, 2010; Petrulytė, 2001), personal trait (Guilford, 1959; Sawyer, 2006; Girdzijauskienė, 2004) and process of creation (Sternberg, Lubart, 1995; Tidikis, 2003). The social point of view is revealed in the author's works towards the phenomenon addressed, when the creativity of a person is being analyzed in various social-cultural contexts. Emphasis is put on the expression of the creativity in different activities of a person, including the following spheres of art: music (Girzijauskienė, 2004; Girdzijauskienė, Rimkutė, 2008; Barkauskas, 2007; Daugėlienė, 2012), the fine arts (Kaluinaitė, 2003), theatre (Kazragytė, 2008) and dance (Banevičiūtė, 2007). Meanwhile, by analyzing the works of the investigators of the world of the recent period, the tendency has been observed that the creativity is being defined not as the all-embracing phenomenon, but as a specific expression in every sphere of the activity.

Musical creativity in comparison with general creativity is a more specific object of research. However, its unanimous definition does not exist as well, since the art of music is very diverse, and musical activity embraces various forms of activity. Some authors relate musical creativity to musical activities, such as composition, arrangement, improvisation (Elliot, 1995; Azzara, 2002; Jorgenson, 2008; Daugėlienė, 2012; etc.). Other authors (Wiggins, 2001; Hickey, 2003) claim that musical creativity should be investigated in response to the peculiarities of a creative process. Such variety of standpoints towards creativity proves the fact that directions of the research on musical creativity are similar to the ones investigating a general phenomenon of creativity (López-González, Limb, 2012). One of the most famous researchers of musical creativity of the late decade, P. Burnard (2012), believes that depending on different viewpoints towards creativity (sociological, cultural, psychological), musical creativity cannot be clearly defined and various musical creativities have to be dealt with.

One of the newest phenomena in the development of the educational process is application of ICT for the development of pupils' creativity. The diversity of educational

documents in Lithuania and in the world confirms the integration of ICT into educational system. After implementation of the strategy of the Lithuanian State education for the period of 2003–2012, when it was endeavored to develop the education with regard to new challenges falling to the Lithuanian public, and new emerging possibilities, general education at schools has been modernized, the schools have been refurbished, and supply of the education has been improved. Thus, the program of implementation of information and communication technologies at schools has been carried out. The system of maintenance and constant update of the basis of these technologies has been designed. "The strategy of implementing of information and communication technologies in educational system of Lithuania in 2005-2007" was approved in 2004, and its aim was to provide equal opportunities to all pupils to reveal themselves and gain the competency in the ICT at the level which meets the needs of an individual and society. Although ICT implementation into the education is being actually carried out, still there are big gaps in different forms of its implementation's "necessary competencies, especially related to the creativity, skills of application of technological practical application of knowledge, communication, enterprise, organization, etc., not being developed or not developed" (The State Strategy of Education for the Period of 2013-2022, 2012, p. 4). Also, there is a lack of scientific research on how ICT, and especially implementation of music computer technologies (hereinafter – MCT), at schools impact studies of pupils and their achievements, if the lifestyle changes at schools (and how), if the culture of constant studying is forming, how it is induced and developed by teachers.

Therefore, the research has been made with **the purpose** to find out possibilities of development of musical creativity by using MCT in the music education of senior pupils. **The methods of the research** were the following: analysis of literature and interviewing music teachers.

2. Theoretical background of the research: Musical creativity and MCT

Musical creativity has been investigated by many representatives of education science; however, there has been no uniform definition of it yet. Some authors (Elliot, 1995; Azzara, 2002; Merker, 2006; Jorgenson, 2008; etc.) define the creativity as a free improvisation; the others examine the computer models of the musical creativity (Cope, 2005). Other researchers (Wiggins, 2001; Hickey, 2003) assert that the musical creativity springs out of the process of creativity, and depending on different points of view (sociological, cultural and psychological), it is differentiated into many "musical creativities" (Burnard, 2012).

The investigations made by the scientists (López-González, Limb, 2012) show that the difference between the musical creativity and the flow concept of one of the most outstanding researchers of creativity of the recent decades, M. Csíkszentmiháyli (1996), is very slight though. Several stages of manifestation of the creative behaviour are being distinguished: *deliberate cognition*, when ingenuity manifests; *deliberate emotionality*,

which is the "aha" experience, positive emotions; *spontaneous cognition*, which is the *eureka* moment, manifesting itself by unexpectedness and suddenness; *spontaneous emotionality,* in which revelation occurs and which is intense and requires special skills.

Musical creativity during a lesson of music is being revealed when pupils accomplish their pre-planned original musical ideas – they arrange. Such process defined as the process of creation when the arrangement is one of the forms of musical thinking and it is not just thinking of music, but on the contrary, this thinking is in music (Wiggins, 2001). Music is one of the fields of performance art, where creativity may be evaluated as a multiple phenomenon (Deliège, Wiggins, 2006; Burnard, 2012). The authors analyzing the musical creativity interweave it with the musical creativity and distinguish several phases of it: preparation and performance. The musical performance is differentiated into two more different forms of creativity. One of them is related to expressive conveyance of musical structures. The other form is the usage of musical structures in the performance without preconception (otherwise called improvisation) (Merker, 2006, from: Deliège, Wiggins, 2006). These forms of the musical creativity manifestation may be performed in real time, while a performer uncloses himself/herself by adding up a nuance, expression, new structure and skills. The performer may render the greater part of music originally, many musical traditions provide with possibilities to prepare structural contents by adorning or improvising during the performance. It is important that the music created has been the expression of the person's inner feelings, as, according to Colwell and Richardson (2002), musical creativity is the kind of invention that allows creating, developing or mastering the art of sound better with a help of expressing inner feelings.

There is the opinion that the musical creativity comprises three musical activities: composition, arrangement and improvisation (Elliot, 1995; Azzara, 2002; Jorgenson, 2008; etc.). Composition is defined as a construction of a musical piece until the final result is reached that may be performed by other persons. Improvisation, a combination of performance and composition when composition is also made during the performance of the piece of music (Daugėlienė, 2012), as named by Jorgenson (2008), is a completely *full-blown composition-in-the-moment-of-performance*, that is specific with a spontaneity and interaction with music. To perform a creative improvisation, additional musical factors of the person improvising are necessary, such as context, means, technique mastering and experience. Arrangement, in terms of rendering the musical material, is similar to the composition and the improvisation; however, in contrast to the improvisation, the musical arrangement of the piece is deliberated and planned in advance and only then performed. Elliot (1995) discussed the fourth element of the musical creativity, which is performance that when interacting with the other three activities of the musical creativity manifests itself as a result of musical intellect and musicality. Thus, the improvisation, the performance and the composition, when during their process convergent and divergent thinking skills join together, allow occurrence of the real product of music (Webster, 1991).

Seeking to distinguish the musical creativity from other definitions of the creativity, Cope (2005) analysed it by computer models and used the concept of "multi-aspect". The author referred to the term "multi-aspect" in order to make different the aspect of

harmony and counterpart – when notes occur at the same time. Musical skills to play music vertically and horizontally at the same time help the art to become unique. Composition of music after computers began to be used changed peculiarities of attitude towards the musical creativity. Music was long time affected by the attitude that computer-assisted composition of music pays most attention to "algorithmic composition" that emphasizes an abstract sequence and creation of patterns to create interesting music (Cope, 2005). However, now the majority of computer specialists and part of the composers do not support this attitude anymore. Having powerful computers and technologies of artificial intellect, it seems that anyone can create sophisticated patterns of musical composition. It requires not only sophisticated presentation of the music and music structure, but also an example and attitude towards the musical creativity.

In recent decades, many representatives of musical world have started using computer technologies more often in different music-related activities. Possibilities of the technologies that opened the space for manipulating different sounds comprehensively allow creating and sharing music with the help of computers (Crow, 2006). It is not necessarily expensive software that does not require ordinary musical skills or other experience of music. Often, the music software is understood and presented as a collection of means of creation providing with diversity of musical patterns and choices (Crow, 2006). Thus, such music computer technologies are mp3 files related to the tools of the software, DJ remix software, generators of music accompaniment, educational music games, loop-based sequencers, etc. Other categories of music software are the ones that require music knowledge (knowledge of traditional scoring, form of a piece of music, style, genre, etc.), such as music notation, creation and editing software Cubase, Sibelius, Finale, etc.

Recently, in pedagogical practice scientific surveys there has been a significant interest in efficiency of using computer and the internet for improving and making education more effective in all levels, in formal and informal surroundings (Tinio, 2007). As every novelty, Music Computer Technologies (as well as Information Computer Technologies) integration to various education levels, also to teaching school subjects, bring positive and negative discussions. On the whole, ICT integration to the development processes is not any innovation or an invention of something new. ICT is more often referred to as a tool to improve development itself. It is also important that the software used is properly prepared and applied; having in mind individual pupils' qualities and that learning material should be presented in several different ways (e.g., text, graph, sound, etc.).

Music and computers are related. For hundreds of years, music was not only a source of inspiration, relaxation or an element used in rituals, but it was also closely related to nature sciences and mathematics. However, musical compositions are too big and too complicated, so that they could be put into mathematical structures practically (Dannenberg, 2006). MCT's usability is quite wide, various software (music creation, music recognition, music learning programs) have become available to any person (Thibeault, 2012). In the last decade, many musicians have started using computer technology more often in different musical activities. The potential of technologies that

allows manipulating various sounds universally also allows creating and sharing music by computers (Crow, 2006). So, such MCT are as follows: mp3 files that are connected to software tools, DJ remix software, musical accompaniment generators, educational musical games, loop-based sequencers, etc. Another musical software category is the one that requires musical knowledge (traditional music notes, music composition forms, style and genre, etc.), such as music writing, creation and editing programs Cubase, Sibelius, Finale and alike.

Members of European Association of Music Development (EamS) perceive a common tendency for new technologies application in music classes (Gall, Sammer, De Vugt, 2012). Consequently, MCT's usage in musical education increases motivation and involvement in the activity, allows a positive effect on achievements, equipment's or internal documentations' portability and live broadcast's open opportunities for new musical activities. In addition, sound and view broadcast allows bigger freedom of expression of thoughts, emotions and moods; there is a possibility to create music, which could not be done by other means; sequential software can be used for listening to music and free and easily downloaded music; recording programs can be used for recording and processing various sounds. Also, for those, who do not play any musical instrument, technologies give an opportunity to perform music using software only. Therefore, technologies offer new ways and methods how traditional musical tendencies could be learned.

3. Research methodology

Interviews with teachers were based on the results of the analysis of scientific literature. The research was made in 2012 by applying a qualitative research method, an individual partially structured interview, which was intended to find out the opinion of the informants and experience in applying the MCT for the development of the musical creativity of senior pupils.

Selection of the informants. Sample units of the population were selected by applying the convenience, purposive sampling. The data has been collected based on Rupšienė's recommendations (2007), which show that there is a sufficient small number of persons investigated in qualitative researches, as in the research of this type it is possible to obtain data confiding not on random, but rather on target selection of the persons investigated (Rupšienė, 2007).

During the investigation, 8 music teachers who used MCT during music lessons for 9-10th form students (I–II gymnasium forms) were questioned. Those teachers who apply purposefully music creating software, digital music production software, internet sites of music listening and demonstrating were selected.

Method of the interview. Interviews with the informants were recorded into a Dictaphone, and these interviews were made during a direct meeting. During the investigation, the principles of investigation ethics were preserved: the informants got

acquainted with the targets of the research, and their consent was obtained prior to recording the information.

The data of the research included texts of the interviews recorded and obtained by transcription of the interviews with the participants of the research. Pedagogic experience of the informants was from 16 to 35 years. Keeping the principle of confidentiality and anonymity, the names of the participants of the research were not mentioned in the text (instead, they were named "M1-8").

The informants were asked questions to get their opinions and experiences in developing the creativity of senior pupils by applying MCT in music classes: 1) What MCT are you using? 2) Please present examples of using the MCT in a music class; what is the purpose of using the MCT? 3) What obstacles of the MCT usage for the development of pupils' creativity do you see?

4. Results and findings

After making the data analysis of the interview, the following MCT used for the music lessons of 9-10th form students may be distinguished: www.youtube.com, software of music creation MusicMaker and Audacity, virtual piano keyboard, interactive board (for music tasks), a microphone with a loudspeaker. Other means used in the music lessons are most often assigned to general ICT (multimedia, internet sites for presentations: www.prezi.com; www.wiki.com; www.slideshare.net, photo camera, video camera, text creation systems, such as for ex, www.etest.lt). The data presented in the results of the research are related exclusively to the application of the MCT.

The informants revealed many methodical patterns on how they use the MCT in their music lessons. The analysis of this data shows that the MCT is not applied purposefully for the development of the pupils' creativity. The majority of the informants (six out of seven) use Youtube website to make a lesson original, help pupils memorize music, expand their imagination not only by listening, but also by watching and evaluating performance of music and listen to music recordings (especially for those that a school has not acquired in CD media), etc.:

"*For example, the national Lithuanian music, especially the glee goes in several trends, and the old traditional performance and the new trend to the modern music is applied to the modern technologies. After reviewing it together, we evaluate, discuss the differences, we may use them by ourselves, as there are no such recordings at school. It is very good indeed; moreover, we may not only to listen to, but watch as well."* (M1)

"TV view expands fantasy, and gets deeper in memory." (M3)

The informants assert that watching video recordings broadens pupils' understanding of music and evaluation of its quality:

"*By watching the images, pupils may evaluate what "cheap" song sounds like. Many forms are now able to evaluate "cheap" and poor arrangement of a traditional song."* (M1)The MCT help recognize different, not only academic, but also modern, or more popular music:

"*Even talking about pop/electro-pop music. It is not necessarily about the academic music. I may instantly Google for example, Aguilera, and to show them what is the electro-pop music, to compare computer music to the entertainment, academic music. There are wide possibilities to make understanding deeper."* (M1)

The other very important possibility of using the MCT is the creation of music using the software MusicMaker and Audacity. Scientists emphasize many aspects on why the software of computer creation of music, using it in the music development, is advantageous. Such software is used not by all the surveyed teachers (only two of them used it); however, they assert that it is important for 9-10th form students to get to know the modern computer technologies and especially to create music by applying them:

"*Although it is not live music, they have the possibility to get acquainted with the modern technologies. This is pure creation as a pupil must perceive a phrase, rhythmical formation, beat, what is the ending, how to conclude, how musical lines are being created. Today not many people know how the computer music is being composed."* (M1)Also, it is important when it comes to the evaluation of music:

"*After completion of work, i.e., creation of own piece of music, I asked to present it to the class. Class friends usually highly, emotionally and benevolently evaluate it; everybody likes it as they understand that the piece of music is composed. The pupil who has composed the piece using the creation software, understands that music must develop, it must come to a certain point, that it should not stay on one level, that development is necessary."* (M1)Usage of the interactive board in the lesson of music is not widely spread among the informants – only one music teacher applies it. She indicates that the interactive board used during the music lessons helps to present the topic and teaching material, to make solfeggio exercises and create them, to check the pupils' knowledge, and the video recording opens the possibilities of self-assessment in certain activities:

"The interactive board allows not only introducing but also performing various solfeggio exercises, to create them, to write them here and now, and to save them. Sometimes pupils do not understand why I give remarks on inappropriate singing, etc. Then I record them, and we watch immediately how it really looks like. And they see what is what." (M4)Another MCT means, mentioned by the informants, is a microphone with a loudspeaker. This means is used only during singing, and according to the M6 informant, she uses it only to find out the methods of singing, what renders not only new experience to the pupils, but also approach to the means of modern music performance:

"For ex., the lullaby of Mozart was sung in an ensemble, children pronounced the syllable "Tum", and one pupil added bass function. It sounded very modern and pleasant, acceptably for them." (M4)The informants were asked what obstacles they find in using the MCT for the development of creativity. The majority of them (without distinguishing MCT and ICT) indicated the lack of the following means: computers on each pupil's desk, methodological aids for each on the integration of the ICT into the music lesson, an interactive board, Finale or Sibelius software, vocal monitors, microphones with recording equipment, an electric keyboard and a video camera.

Thus, the informants confirmed the thesis of the scientists that the usage of the MCT in the lessons of music is applied to achieve various objectives. During the lessons of

9–10th form pupils, various MCT are used, and each teacher of music selects the ones that are available, acceptable or necessary for their pupils. The musical creativity of the pupils is best developed by using the software for music composition.

5. Conclusions

The literature review revealed that the authors who explored musical creativity describe it quite differently. Musical creativity is described as a free improvisation, which analyzes musical creativity computer models, or musical creativity comes from creativity process. On the whole, musical creativity is not separated from general creativity, which is so widely analyzed by sciences of psychology and pedagogy.

One of the fastest growing forms of musical creativity expansion and development is the usage of MCT in musical education. A lot of foreign scientists perceive positive tendencies in applying new technologies in music classes.

With reference to the scientific literature review, interviews with 9-10th form pupils' teachers were made. These interviews aimed at revealing attitudes and experiences in using MCT in the music lessons for senior pupils in order to develop musical creativity. The interviews showed that in 9-10th form music lessons, different MCT are used, and music teachers choose those tools that are available, acceptable and useful for pupils. Most commonly used tools in 9-10th formers music classes were the following ones: www.youtube.com, software MusicMaker and Audacity, a virtual piano keyboard, an interactive board (for completing musical tasks), a microphone and speakers. Other tools could be included to the general ICT, such as multimedia, websites for introduction, e.g., www.prezi.com, www.wiki.com, www.slideshare.net, a photo camera, a video camera, test creation systems, e.g., www.etest.lt).

The survey also revealed that the teachers lack knowledge about musical creativity development, many of them use MCT only because they are interested in them by themselves and they foresee higher pupils' motivation for studying. Only several teachers who use MCT longer than 2-3 years believe that they are meant not only for increasing motivation, but also to develop pupils' musical creativity.

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AUKŠTESNIŲJŲ KLASIŲ MOKINIŲ MUZIKINIO KŪRYBIŠKUMO UGDYMAS NAUDOJANT MUZIKINES KOMPIUTERINES TECHNOLOGIJAS (MKT) MUZIKOS PAMOKOJE

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Santrauka. *Pastarąjį dešimtmetį ypač plačiai analizuojamos dvi ugdymo problemos, viena jų – kūrybiškumas, taip pat ir muzikinis kūrybiškumas, kita – naujosios technologijos muzikiniame ugdyme. Tyrėjai siūlo įvairius muzikinio kūrybiškumo ugdymo metodus, prie kurių priskiriamos ir kompiuterinės technologijos. MKT panaudojimas muzikinio ugdymo procese leidžia išplėsti mokinių meninės raiškos, kūrybos būdų, formų, bendrųjų gebėjimų (socialinių, informacinių, kūrybiškumo ir kt.) galimybes; sudaro sąlygas kūrybiškai pritaikyti žinias, gebėjimus, kūrybiškai bendrauti ir bendradarbiauti. Tyrimų, atskleidžiančių MKT naudojimo aukštesniųjų klasių mokinių muzikiniam kūrybiškumui ugdyti galimybes, vis dar stokojama. Todėl buvo atliktas tyrimas, kurio tikslas – išsiaiškinti MKT naudojimo galimybes ugdant aukštesniųjų klasių mokinių muzikinį kūrybiškumą muzikos pamokoje. Tyrimo metodai: literatūros analizė, interviu su muzikos mokytojais. Tyrimo metu apklausti 8 muzikos pedagogai.*

Mokslinės literatūros analizė atskleidė, jog muzikinį kūrybiškumą tyrinėję autoriai jį apibrėžia gana įvairiai. Kai kurie mokslininkai (Elliot, 1995; Azzara, 2002; Merker, 2006; Jorgenson, 2008 ir kt.) jį apibrėžia kaip laisvą improvizaciją, kiti (Cope, 2005) nagrinėja

muzikinio kūrybiškumo kompiuterinius modelius. Dar kiti (Wiggins, 2001; Hickey, 2003; Burnard, 2012) mokslininkai teigia, kad muzikinis kūrybiškumas atsiranda iš kūrybiškumo proceso. Dažnai muzikinis kūrybiškumas apskritai nėra atskiriamas nuo bendrojo kūrybiškumo, taip plačiai analizuoto psichologijos ir pedagogikos mokslų. Straipsnyje muzikinio kūrybiškumo samprata analizuojama plačiau.

Viena iš gana sparčiai plintančių muzikinio kūrybiškumo plėtros ir ugdymo formų yra MKT naudojimas muzikiniame ugdyme. Nemažai užsienio šalių mokslininkų įžvelgia pozityvias naujųjų technologijų taikymo muzikos klasėje tendencijas (Gall, Sammer, De Vugt, 2012).

Remiantis mokslinės literatūros analizės duomenimis, buvo atliktas interviu su 9–10 klasių mokinius mokančiais muzikos mokytojais. Interviu norėta atskleisti muzikos mokytojų požiūrį ir patirtį naudojant MKT aukštesniųjų klasių mokinių muzikiniam kūrybiškumui ugdyti. Interviu gauti duomenys atskleidė, jog 9–10 klasių muzikos pamokose naudojamos įvairios MKT ir muzikos mokytojai pasirenka tokias, kokios jiems yra prieinamos, priimtinos ar jų mokiniams reikalingos. Dažniausiai 9–10 klasių mokinių muzikos pamokose naudojamos priemonės: www.youtube.com, kompiuterinės muzikos kūrybos programos Music Maker ir Audacity, virtuali pianino klaviatūra, interaktyvi lenta (muzikinėms užduotims atlikti), mikrofonas su kolonėle. Kitos priemonės labiau priskirtinos prie bendrųjų IKT (multimedija, internetiniai tinklalapiai pristatymams: www.prezi.com; www.wiki.com; www.slideshare.net, fotoaparatas, vaizdo kamera, testų sudarymo sistemos, kaip, pvz., www.etest.lt).

Tyrimas atskleidė ir tai, kad mokytojai labai stokoja žinių apie muzikinio kūrybiškumo ugdymo metodus, dažnas jų MKT naudoja tik todėl, kad pačiam yra įdomios naujosios technologijos ir jie įžvelgia geresnę mokinių motyvaciją muzikos mokymuisi. Tik vienas kitas mokytojas, kuris MKT naudoja jau daugiau nei 2–3 m., teigia, kad tai priemonė ne tik motyvacijai didinti, bet ir mokinių muzikiniam kūrybiškumui ugdyti.

Raktiniai žodžiai: *muzikinis kūrybiškumas, aukštesniųjų klasių mokiniai, muzikinės kompiuterinės technologijos.*