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Complex Interaction of Traditional Innovative Teaching and Education Aids in the Process of Social and Aesthetic Education at School and University

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Abstract

The growth of megacities, uneven development of the center and regions, personification of audiovisual media, and disconnected subjectivity in the society makes the school and university education steadily move towards computerization and digitalization. There is a predictable cultural discrepancy due to the difference in opportunities, motivation, and the quality of teaching aids in the elite and local schools. It makes the issue of the research obviously relative and is seen as three interrelated contexts: social, cultural and educational.
Moreover, the solution of the issue in the educational context makes the risks, generating from out the other contexts, drop significantly. Therefore, the article is focused on the ways to bridge cultural discrepancy in the Vladimir regional education system while bringing the traditional and innovative teaching aids to balance.
The methods include analysis, modelling and statistical techniques.
The experimental research material reviewed in the Vladimir branch of Financial University under the Government of the Russian Federation, Vladimir State University and the practical outcomes make it possible to work out a model of the complex interaction of the traditional and innovative teaching aids providing the professional training and individual development only due to the balance between life music and electronic recordings, the interaction of "offline" and "online" structures in the monocultural and multicultural forms.

Keywords: innovative teaching and education aids, traditional teaching aids, cultural discrepancy, complex interaction.

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Introduction

The interplay between the possibilities of virtual reality and traditional teaching aids in education has become drastically relevant recently. In fact, the layout of the present article had been made before the world of education switched to distance learning in the pandemic lockdown. However, it is obvious that even with severe necessity, the balance between the distance learning and virtual reality cause many disputable issues, often provoking complete rejection.

The “natural experiment” relating to the distance learning and virtual technologies is likely to be considered both as the process of mastering a specific educational material and as values-oriented approach. Moreover, expansion or extension of this regime when out of vital need, is another big issue.

Purpose and objectives of the study

There are three main contexts in the issue of cultural discrepancy: sociological, culturological and educational. Handling of educational obstacles is supposed to bring down the risks in other contexts. The research of the educational context makes it possible to speak about the interrelation of traditional aids of learning and new, innovative techniques. What is the most efficient ratio of these interrelation? What are the possible ways to manage and monitor the objective processes of digitalization and computerization in arts learning? What is the visual form of the cultural discrepancy? What is the nature of this threat? Are there any ways to overcome it?

The research, based on statistical analysis and modelling, is aimed at finding the ways to bridge cultural discrepancy in the Vladimir regional education system while bringing the traditional and innovative teaching aids to balance and making the model of their complex interaction. The methods include analysis, modelling and statistical techniques.

Literature review

The research is focused on the existing data having been scientifically proved by such scholars and psychology experts as Aldoshina (1998), Kirnarskaya (2004), Mashbits (1988), Rubtsov et al. (1994), Tikhomirov (1984), Verbitsky (1994), Zhdan (2008), etc. The review of the existing data makes it possible to single out two main aspects of the issue.

The first aspect of the issue is threatening rise of virtualization in learning over traditional pedagogical aids and techniques.

The growth of megacities, uneven development of the center and regions, personification of audiovisual media, and disconnected subjectivity in the society makes the school and university education steadily move towards computerization and digitalization. The time of a device-human interaction is gradually increasing, and its format is expanding.

Readily available virtual chemical experiments in virtual laboratories do not require chemicals or test-grasses, or any responsibility for health and safety compliance. Virtual technical modeling is carried out without any risks to get cut or burnt. Virtual backing and karaoke tracks that do not require practicing scales or study harmonic laws make the music-making process easily available. Virtual reality is turning into the common environment in school education making itself more and more profound. The chance to carry out experiments in virtual labs in every field have two main benefits: they are cost-efficient and safe.

It comes as no surprise that the poor safety is caused by the incompetence of vital activity safety with school students. The on-the-spot cost-efficiency and safety leads to the immaturity of culture and awkward behaviour in specific fields.

The second issue is cultural discrepancy caused by the unequal domination of virtual reality in education.

The gap between elite schools with the available horse stables, workshops, musical instruments and local schools that suggest exploring the world through a monitor window or listening to electronic music, is getting more and more apparent. There is a predictable cultural discrepancy due to the difference in opportunities, motivation, and the quality of teaching aids.

Methodology

Let us consider the first aspect of the issue – the impact of education virtualization on an individual in general.

Back in the 1950s, Heidegger (1959) admitted the bitter fact that a person had lost prospective thinking and predicted that the human environment would get drastically forced with technology. The scientist warned about a complete dependence on “technical devices” that suppresses a person’s will and seriously affects decision-making. Today, the development of media technologies makes it grow and extend incredibly. Psychologists sound the alarm about addiction to gambling, sexogolism, shopaholism, computer and Internet addiction. Moreover, researchers identify such serious threats as antisocial interests with young people, development of various groupings and dispositions on the Internet, creation of a virtual personality, experiments with an identity (Pleshakov, 2009, p. 33).

At the turn of the 20th and 21st centuries the scientific community focuses on different issues when beauty no longer saves the world, and the world of art does not save from loneliness and estrangement. Modern school students are much more focused on an individualized form of data assimilation than on outdated forms of group activities including joint watching of movies, visiting performances, listening to radio programs, even the ones that are specially designed for them. The present-day realities demonstrate that computers have become personal, and each user has his/her own, personal means of communication. There is a certain device with audio recordings and a different device designed for personal listening to music. Here is where the conflict model of the connection between the art world and the human world arises.

One is likely to witness encapsulation, enhancement of personification, when a hoodie and earplugs (and even a medical mask at the pandemic time) both separate and hide a person from the external factors. Markus and Kitayama (2003) point out that the model of disconnected subjectivity highlights the personal autonomy, enclosed in the individual-self. This model, in their opinion, "fairly represents a common model of motivation, but comes out as a model demonstrating the life principles, typical for the European-American middle-class society" (Markus & Kitayama, 2003, p. 5). The current research has confirmed the fact of personification. It turns out that examinees tend to perceive music as a "person in trust" (Kirnarskaya, 2004, p. 61).

Let us consider the second aspect of the issue – the cultural discrepancy generated from the predominance of virtual reality in education.

The interrelation of cultural discrepancy and full-fledged practical communication rather than virtual communication with the artistic and technical world has its roots in the historical context. Since the 18th century, "live" music playing in education has become both the necessity and the means of social differentiation (in other words, the means that distinguishes a true aristocrat from someone going "from zero to hero" overnight). One can witness the correlation of cultural equality / inequality with the chance to obtain a full-fledged musical or even art education carried out by the prominent culture figures.

For example, Bortnyansky took an active part in the education of the elite, while teaching and writing music as a pedagogical tool. He created special carols for the students of Alexander Manufacture College in St. Petersburg, cadet students, the Smolny Institute students, and students of St. Catherine's Order Moscow School. He gave lessons to Grand Duchess Maria Fyodorovna and was the author of the album of musical pieces for her to perform with a piano, harpsichord and clavichord. In 1793, Bortnyansky published a collection of French romances and songs. The collection was written for Pavel I's daughter-in-law Princess Elizabeth, but got extremely popular with many aristocratic houses and salons of St. Petersburg.

In the XIX century, the trend got even more pronounced. The future composer Serov described the Law School (in which Tchaikovsky also used to study) as the one where music got "positively flourished". Each student could choose one musical instrument and learn how to play it at their diligence. Even the individuals with the most incentive and non-artistic nature followed the common trend, got hooked and carried away, trying their hand in flute or horn playing; there were even those who chose double bass as their specialty. The school's spirit was musical ... (Boldyrev, 1998, p. 423).

Eventually, "live" manual labour was added to "live" music playing as a means of social differentiation in education. In private Polivanov's gymnasium, in Kudryakov's boarding school, in the men's gymnasium named after the Medvednikovs, and in the cadet corps students were first taught how to make wooden and then metal items. Even for elite education it was extremely expensive. It was out of question to introduce and implement Manual Labour as a school subject in all cadet corps due to the "lack of funds for furnishing and supplying them with necessary tools and manuals" (General program, time schedule and instructions for extracurricular activities in the cadet corps, 1890, p. 11). Instead, museums were likely to become a more democratic means involving the only possibility of visualizing the world of technology in the 19th century (Butovsky, 1871).

In the 20th century (in the Soviet times), the increasing number of musical schools, the development of musical and pedagogical faculties of universities, and the boost of methodological and practical concepts of musical education gave rise to the universal idea of playing acoustic musical instruments and listening to "live" music and made it implemented everywhere. Unfortunately, nowadays these achievements are being lost acquiring the old-school format and forcing "live" music playing literally washed out of musical school education.

The average wear of musical instruments in Russia is 70 per cent with 81 per cent for the average wear of piano. To address the problem, since 2017 in musical schools and culture colleges there has been implemented a three-year public procurement mechanism. Nevertheless, secondary schools cannot boast any significant changes relating to their musical resources supply. The lack of sufficient funding is just one side of the problem. After getting a bachelor's degree, music teachers are fairly trained enough to become professional instrumentalists. Moreover, the number of individual classes involving practical mastering of musical instrument for future music teachers (bachelor's degree students majoring in Teacher Education) has dropped by 4 times compared to the late Soviet period (from 2 academic hours a week to 1 academic hour in 2 weeks).

It should be noted that sound reproducing equipment is mostly used in class. At the same time, future music teachers are not trained to play electronic music or use digital technologies to develop musical and creative abilities in practice.

In present-day Russia, there will be hardly ever found any manufacturers of pianos. Having decided to give their children a musical education, parents are more likely to buy a digital piano for home practicing, or, in other words, an imitation of a live instrument, whereas a digital piano is marked by music teachers as the main source of negative impact on training:

- students are likely to "stroke" the keys of an acoustic instrument rather than keep the sound full since they get used to control the volume mode;

- students tend to "pound" on the keyboard without any visible reason that is prompted by the habit to turn the volume down during the evening music practice at home;

- students cannot learn how to use the piano pedals since not a single digital piano is equipped with those similar to the regular piano instrument.

Many schools have already adopted synthesizers, replacing both the upright piano and grand piano. Moreover, the use of a synthesizer, its artistic and technical features for the development of musical and creative skills of students is included into the Keyboard Synthesizer learning program and is one of the key components of the curriculum. In fact, a synthesizer is likely to bridge the gap between the electro-acoustic form of music in real life and its traditional sound form in a school-like course of study.

Experiment description and procedure

The empirical research material includes the complex use of the traditional and innovative teaching aids which provide important synergetic effect to preserve psychological health and boost intellectual and cultural development of a person's nature. The research has been carried out in the Vladimir branch of Financial University under the Government of the Russian Federation and Vladimir State University. The experiment included the pedagogical follow-up, psychological screening and multi-level individual survey "Adaptability" for Bachelor's degree students between 2014 and 2019.

The psychological and pedagogical follow-up for students in the Vladimir branch starts since the very first days they have entered the university. The results of the psychological screening of first-year Bachelor's degree students showed the insufficiency and deficit of their adaptation abilities.

In particular, the indicators of moral and normative features of students are likely to meet the standards, whereas the indicators of their neuro-psychiatric sustainability and communicative skills differ by $p<0,05$ from the nominal value. These indicators are considered as the main and key criteria of successful academic and professional adaptation, thus making it possible to demonstrate that a part of freshmen is likely to overcome challenges of their socio-psychological adaptation to the learning and academic environment during their study in the university.

Further annual psychological monitoring is provided in the end of the study using the standardized methods and techniques, socio-psychological and psychological testing with the purpose to study the dynamics of students' personal attitudes and individual motivation at the end of the first semester of each academic year. The monitoring outcomes help to evaluate the following aspects: 1) students' individual psychological attitudes and their development dynamics; 2) dynamics of motivation objectives, learning purposes and perspectives of professional activity; 3) nature of personal interrelations and academic group matters, attitudes, unity and team spirit; 4) likelihood of addictive behaviour.

The innovative system of pedagogical follow-up for students, based on the systematic development of personal creative potential, students' team initiatives, their social and cultural adaptability due to the collective visits to theatres, exhibitions, life-music concerts relating to the traditional teaching aids, has proved itself efficient.

The results of the comparative analysis demonstrate the positive outputs. The statistics show the increase of the neuro-psychiatric sustainability (by 12%), communicative skills (by 18%) and moral principles (by 30%), as well as the common indicator of the individual adaptation potential (by 20%) with the undergraduate students.

Results

The research makes it possible to strengthen the following existing scientific findings:

1) computerization and digitalization are likely to be used as a means of teaching, education, professional training or individual development; 2) innovative forms of communication provide additional opportunities to meet the person's needs in information, interaction, transformation of traditional forms.

The research indicates the following phenomena: 1) the educational space of schools and universities provides the interaction of "offline" and "online" structures in the monocultural and multicultural forms; 2) the artistic culture of an individual can be developed only due to the balance between life culture and electronic recordings.

The research allows to work out a model of the complex interaction of the traditional and innovative teaching aids (Figure 1).

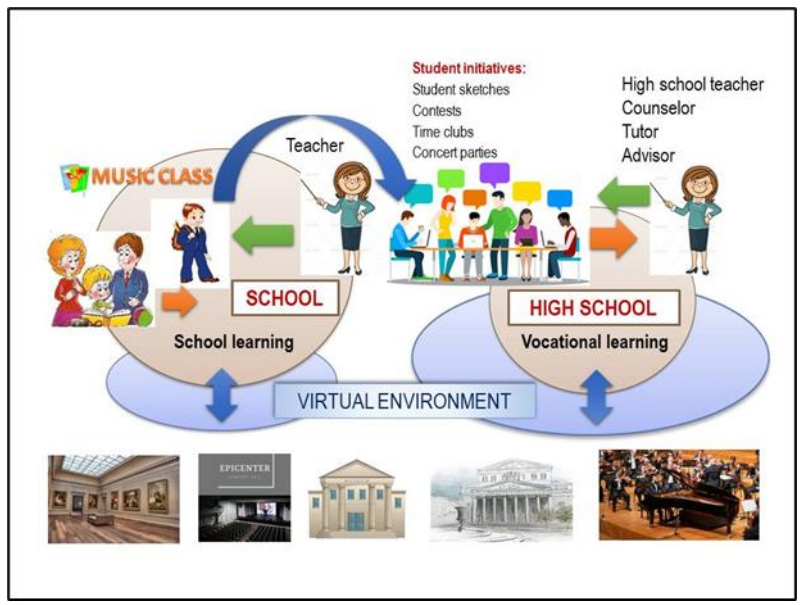

Figure 1. The model of the complex interaction of the traditional and innovative teaching aids in the School – High School paradigm

The results of a practical study confirm the effectiveness of the model. Activities to realize the creative potential of students, their social and cultural adaptation through regular collective visits to theaters, exhibitions, concerts of live music showed the following. The level of neuropsychic stability increased by 12%, communicative qualities by 18%, and moral and normative qualities by 30%. The indicator of adaptive abilities of an individual grew by 20%.

Discussions

The world of virtual culture has great potential. For example, electronic music playing has its educational benefits, which make it possible to single out voice tracks, experiment with tones and tunes. However, centering around this music as the means of school music education is seen not only as a phenomenon that reduces the level of artistic culture, but also makes it unsafe, turning into a simulacrum.

According to Aldoshina, a psychoacoustics expert, “the development of stereo reproduction systems and modern spatial sound reproduction systems <...> is caused by the creation of auditory illusions, confusing the human auditory system greatly” (Aldoshina, 1998, p. 101). However, numerous psychoacoustic

experiments showed that it stays incomplete. “Human hearing can localize the imaginary source of sound where no real source exists, but whether the timbre from this source is same to the real one <...> makes the difference” (Aldoshina, 1998, p. 101). The scholar points out the danger of creating electronic musical compositions and computer sound processing caused by the lack of professional catering of sound frequencies, “unless you are up for creating the music that is focused on getting the listener end up with a nervous breakdown” (1998, p. 101).

Here comes the other side of the coin. It seems totally wrong to ignore the changing environment or innovative approaches. On March 28-29, 2020, the Institute of Educational Policy Issues Eureka arranged several training sessions for Moscow schools in four programs. All lectures, workshops, discussions, trainings and laboratory projects were successfully carried out in a digital environment. The names of the programs speak for themselves: Media in Education, School Splitting (from real school to virtual), Digital Formats of Main Educational School Program. Yesterday, distance learning was seen as probable, and today it is existing “here and now”. There are some obvious advantages of a virtual educational environment which contains interactive learning objects:

- psychological comfort (different from escape);

- individualization (different from encapsulation);

- huge resource funding (including efficient choice of digital products);

- transformation of teaching roles (a teacher as a tutor, consultant, moderator).

It comes as no surprise that in Russia the fine arts and art culture are historically included into the mandatory practical involvement of preschool and secondary school students into the educational process. Another form of art education is non-official and non-compulsory with a network of educational and enlightenment institutions, chosen by an individual as a driving force according to his/her preferences and interests. These two institutional forms can be united with the third one named contextual. It gets its name due to the fact schoolchildren and students are involved into the “intensive interplay and overlap of new communities and activities, their social and cultural design and nature” (Rubtsov et al., 1994, p. 100).

While educational and vocational activity is viewed as the core “text”, the way an individual enters this environment, adapts and feels in an unknown community or social group, is called contextual.

Conclusion

The experience, based on the dichotomy of the traditional and innovative teaching aids, seems to be reviewed and implicated.

The horizontal structure of the educational networking seems to be effective for several homogeneous institutions with different functions (experimental sites, additional training centers, etc.) to conduct the overall educational activity.

References

Aldoshina, I. A. (1998). *Grounds of psychoacoustics*. Retrieved from http://www.digitalmusicacademy.ru/sites/default/files/content/aldoshina-psihoakustika.pdf.

Boldyrev, N. F. (1998). *Beethoven. Meyerbeer. Glinka. Dargomyzhsky. Serov: Biography reviews*. Chelyabinsk: Ural LTD.

Butovsky, V. (1871). Museum and school. *Moskovskiye vedomosti - Moscow news*, 101.

General program, time schedule and instructions for extracurricular activities in the cadet corps. (1890). St. Petersburg.

Heidegger, M. (1959). Conversation on a path. *Izbrannye stat'i pozdnego perioda tvorchestva - Selected papers of late Heidegger*. Retrieved from http://filosof.historic.ru/books/item/f00/s00/z0000290/index.shtml.

Kirnarskaya, D. K. (2004). *Psychology of special abilities. Musical abilities*. Moscow: Talanty - XXI vek.

Markus, H. R., & Kitayama, S. (2003). Models of agency: Sociocultural diversity in the construction of action. *Nebraska symposium on motivation, 49*, 1-58.

Mashbits, E. I. (1988). *Psychological and pedagogical issues of computerized learning: Pedagogics to school reform*. Moscow: Pedagogika.

Pleshakov, V. A. (2009). Cybersocialization as innovative social-pedagogical phenomenon. *Prepodavatel XXI veka - Teacher of XXI century, 3*, 32-39.

Rubtsov, V. V., Guruzhapov, V. A., & Margolis, A. A. (1994). Cultural and historical type of school. *Voprosy psikhologii - Psychology Issues, 5*, 100-110.

Tikhomirov, O. K. (1984). *Psychology of thinking*. Moscow: MGU.

Verbitsky, A. A. (1994). Contextual teaching: theory and techniques. *Novye metody i sredstva obucheniya - New methods and aids of teaching*, 3-57.

Zhdan, A. N. (2008). O. K. Tikhomirov's works: Historical and psychological review. *Vestnik Moskovskogo universiteta - Bulletin of Moscow University, 14*, 12-13.