

SOUND RECORDING TECHNOLOGIES AND MUSIC EDUCATION

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Abstract: The birth of sound recording technologies was closely connected to a need for the support and improvement of music education from the very beginning. It was Thomas Alva Edison who made the greatest efforts to achieve this goal, and his photograph brought about a worldwide revolution in the way how the sonority of musical compositions was perceived. Shortly after Edison's invention, sound recording technologies started to be used extensively as a didactic tool in music education at various levels. In the early twentieth century in Czechoslovakia, sound recording technologies were used extensively in education programmes broadcast over the radio. Currently are being established as a separate course which forms part of the training of professional audio engineers.

Keywords: sound, music education, audio recording

1 Introduction to the Development of Sound Recording Technologies and their Relationship to Music Education

French inventor Édouard-Léon Scott de Martinville (1817-1879) was the first pioneer of sound recording and managed to record sound waves depicted visually with his invention, the phonograph. Scott worked on a device which could record sound but could not play it. A bookbinder by profession, he also dealt with stenography and logography, issuing a book of great significance on the subject, *Histoire de la sténographie depuis les temps anciens jusqu'à nos jours*.¹ The idea behind Scott's invention was to transcribe sound (human speech) or the musical phrases of a singer into written (visual) form.² He did not intend to reproduce the recordings in an aural form. Scott began working on his phonograph in 1853³, but the political and economic situation in France did not make it possible for him to obtain significant funding for his research, so he worked under modest laboratory conditions.

To clarify why such an important invention, a device for recording sound, did not find wider support from governmental and academic institutions, we have to look into the conditions in France at that time. In the field of inventions and innovation, France had held a dominant position for a long time. However, in the latter half of the 19th century, research activities focused on other areas. The development of agriculture and the development of weapons dominated during the Franco-Prussian War of 1870 to 1871.⁴ Another problem Scott faced in his research was the absence of relevant higher education at a Paris university, which would have secured the favour of the representatives of l'Academie des Sciences, the largest scientific institute in France at that time. In the scientific field of acoustics, Scott was an autodidact and, although he asked for funding from the Academy several times, he never received it. Moreover, the field of acoustic research did not enjoy priority at that time and the majority of the academicians rejected it completely.⁵ To construct a phonograph with the aim to patent it, he obtained funding only from the Société d'encouragement pour l'industrie nationale (Society for Encouraging National Industry).⁶ He received the patent for his phonograph on 18 May 1857. Later, in 1861, he delivered a set of visual recordings of sound (phonautograms) to l'Academie

des Sciences for demonstrational purposes, of which scientists from the Lawrence Berkeley National Laboratory managed to transcribe the visualization of the Au Clair de la Lune song into sound in 2010.⁷ This is the earliest sound recording transformed in history. Thanks to the funding, Scott could sign a contract with German constructor Rudolf Koenig (1832-1901) who created a more developed model of the phonograph. A few functional models were sold to laboratories and teachers (of unspecified fields).⁸ Therefore, the phonograph can be rightfully labelled as one of the first didactic tools to illustrate the way of recording and storing sound.

Another attempt at inventing and constructing a device for recording sound was carried out by French inventor and poet Charles Cros (1842-1888) twenty years after granting the patent for the phonograph. His vision of recording sound differed from that of the phonograph in the fact that he wanted to construct a device which would be able not only to create a sound recording but to play it as well. From this aspect, Cros's paleophone is actually the first evidence of an attempt to create a full-fledged sound recording in the way it is perceived today.⁹ Just like Scott, he also tried to receive funding from the Academy in vain. The reason was his engagement in left-leaning politics and the absence of relevant education. The ideas and the construction designs of the paleophone remained only in writing, and the device was never constructed. He submitted sealed documents containing detailed information about the paleophone to the Academy on 30 April 1877¹⁰, preceding the patent of Thomas Alva Edison by eight and a half months. In 1878, Cros appeared in front of the Academy of physicists to protest, in vain, against the demonstration of Edison's phonograph which was to be carried out by Tivadar Puskás,¹¹ a renowned Hungarian inventor of the telecommunication system, invited by the academicians. This was Charles Cros's last activity in sound recording research before quitting this field for good.

The exceptional and pioneering inventions of Édouard-Léon Scott de Martinville and Charles Cros remained largely unnoticed due to the rigidity and formalism of the scientific community and academicians of France, and also due to the political and economic situation in the country at that time. On the contrary, the situation in the US worked in favour of American inventor Thomas Alva Edison to achieve global success in the field of the phonograph industry. In December 1877, the first sound recording device, a phonograph, was made which could not only record sound but play it as well. Edison got the idea to construct a phonograph while working on the design of a toy¹² in his research residence in Menlo Park, New Jersey.¹³ While singing into the receiver of a telephone and holding its cable with a metal end in his hand, he found that the vibrations of the sound moved through the metal tip. He realized that, if he managed to record this movement, he would be able to reproduce it as well.¹⁴

Edison's approach to finding ways to utilize the phonograph exhibited all the features of entrepreneurial thinking. Scott and Cros could not compete with Edison and had no chance to succeed even if they had followed their inventions through. The financial, political and technological background of one of the most accomplished inventors of his time was so solid that, immediately after constructing the first prototypes of the

¹BROCK-NANNESTAD, George a Jean-Marc FONTAINE. Early Use of the Scott-Koenig Phonograph for Documenting Performance, p. 6241.

²The Phonographic Manuscripts of Édouard-Léon Scott de Martinville, p. 5.

³The Phonographic Manuscripts of Édouard-Léon Scott de Martinville, p. 70.

⁴Franco-German War. Available at: <https://www.britannica.com/event/Franco-German-War>.

⁵KENNEY, William H. Historical Influences on French Inventors of Recorded Sound, 1857-1914, p. 3.

⁶ARSC Newsletter [online]. Available at: <http://www.arsc-audio.org/newsletter/nslr120.pdf>, p. 13.

⁷ROSEN, Jody. Researchers Play Tune Recorded Before Edison, p.1.

⁸KENNEY, William H. Historical Influences on French Inventors of Recorded Sound, 1857-1914, p. 210.

⁹KENNEY, William H. Historical Influences on French Inventors of Recorded Sound, 1857-1914, p. 206.

¹⁰SCHOENHERR, Steven. Charles Cros, p. 1.

¹¹KENNEY, William H. Historical Influences on French Inventors of Recorded Sound, 1857-1914, p. 212.

¹²KELLEHER, Kevin D. The Contributions of Thomas Alva Edison to Music Education, p. 42.

¹³WILE, Raymond R. The Edison Invention of the Phonograph, p. 5.

¹⁴Edison and His Inventions [online], p. 93.

phonograph, Edison started to look for ways to utilize it in the society. Initially, he made extensive use of the phonograph to present sound recordings in the form of organizing new types of concerts¹⁵ where live musicians played long with the phonograph.¹⁶ He found another area for its use in stenography where it was to make the work of stenographers easier by transcribing the aural form into written text.

However, Edison's main goal was to record sound, especially musical sound. The phonograph did not meet the criterium of transcribing sound directly into a visual form like de Martinville's phonograph did. In this respect, even de Martinville spoke out regarding the phonograph in his publication *Le problème de la parole s'écrivant elle-même* and labelled it as a failure compared to his own invention.¹⁷ Therefore, Edison's phonograph did not replace the stenographers despite its massive advertising campaign, and remained only an aid. Regarding the above issue, it is worth mentioning that there is still no device that would be able to transcribe speech into text reliably and with a universal effect even 139 years after the invention of the phonograph. This task appears to be extremely complicated even at present. Consequently, the phonograph became most widely used as a technological device for listening to music and as a didactic tool in music education.

2 The Phonograph in Music Education

The phonograph, and other devices able to store and play sound recordings, were invented in the US at a time when discussions were going on and demand was rising for identifying American national culture all over the society. Establishing a national education system for teaching the arts also had to serve this purpose.¹⁸ Already in the beginnings of the sound recording technology, it became evident that it would be one of the most important forms of the preservation of national elements and traditions of music.¹⁹ The affordability of Edison's phonograph enabled almost anyone to record sound and music and, consequently, to create the cultural heritage of the nation. Edison was the first person to realize that the phonograph could succeed commercially only if it penetrated into people's homes. An article titled *The Song in The Silent House*,²⁰ published in one of the issues of the *Edison Phonograph Monthly*, aptly named the problem of the absence of listening to music in American households and attributed an almost supernatural and mystic power to the phonograph in "animating" a "dead" house with music.

The representatives of the phonograph industry could not have wished for a better situation in the society when women played an absolutely dominant role in the households. Their tasks included maintaining a certain cultural standard in the family life and making decisions on which pieces of technical equipment to buy for the household.²¹ Moreover, in the late 19th century, women played a prominent role in the development of the cultural life of the American cities by their activities in women's clubs, and their task was to develop their own musical talent as well.²² Housewives wanted to identify themselves with their favourite singers and now they had the opportunity to listen to them not only on the stage but also in their homes, on sound recordings. More and more women wanted to perfect their musical skills, especially their singing, but formal training in

institutions or by private tuition was costly for the majority of them, especially when compared to a phonograph.²³

Consequently, the history of music education supported by sound recording technology started in the households and not in specialized educational institutions. Edison's phonograph was the first device to enter schools as a regular didactic tool. Thanks to the *Edison Phonograph Monthly*, issued from 1903 by the National Phonograph Company,²⁴ the general public and the educational institutions could come to know about the possibilities and use of the phonograph. An article titled *The Phonograph — How it May Help Music Teachers*, published in 1905 in the *Edison Phonograph Monthly*, says that, thanks to the phonograph, students can find out the composer's intention and learn the way in which the piece should be rendered. It also mentions, for example, the possibility to compare the renderings between students from other, more distant schools, which can ultimately widen their communication skills by a new element.²⁵ The success of the phonograph in education (and not only in music education; the phonograph was used e.g. for teaching languages, too) made Edison's company to manufacture a specialized model of the phonograph for schools, called the *Edison School Phonograph*, in 1912.²⁶ The new device was presented in the December 1912 edition of the *Edison Phonograph Monthly* and it differed from the standard phonograph in its metal structure equipped with wheels for better portability. For music educational purposes, the preferred pieces were primarily opera arias, orchestral works and chamber pieces. The presentation of the phonograph placed great emphasis also on an extremely important function of the phonograph: on recording sound.

In this regard, the phonograph was unique because, at that time, it was the only device that was able to create recordings and play them as well. However, in the competition with his greatest rival, the Victor Talking Machines company, Edison lost the battle to enforce recordings of musical performances. Realizing the huge advantage of the phonograph, Edison tried to point out in his battle with the Victor company the fact that, from the aspect of education, a recording of one's own rendering of a piece, whether played on an instrument or sung, can be a lot more important than listening to the recordings of prominent concert artists or opera stars.²⁷ However, thanks to the better marketing strategies of his competitor and the massive commercial campaign of certain music journals,²⁸ the concept of listening to opera recordings was permanently established from 1912 as the basis of music education. The concept of teaching with the help of the recordings of musical performances receded to the background.

Schools providing distant education in music were an exception, though. In the early 20th century, distant education gained a prominent role primarily due to the inadequacy of the infrastructure and transportation system. It was difficult to commute to better schools in big cities, so distant education became the only solution for a large number of people.²⁹

The first school providing distance education was *Siegel-Myers Correspondence School of Music* which began its activities in 1903.³⁰ The school started its distant education in music in 1906³¹ and used the phonograph for this purposes. Educational

¹⁵DYER, Frank L. a Thomas C. MARTIN. *Edison His Life and Inventions*, p. 213.

¹⁶KELLEHER, Kevin D. *The Contributions of Thomas Alva Edison to Music Education*, p. 48.

¹⁷DE MARTINVILLE, Édouard L. S. *Le Problème De La Parole S'Écrivant Elle-Même* [online], p.10.

¹⁸*Introduction to American Studies*, p. 7.

¹⁹BOWERS, Nathan D. *Creating a Home Culture for the Phonograph: Women and the Rise of Sound Recordings in the United States, 1877-1913*, p. 26.

²⁰EDISON, Thomas A. *The Song in the Silent House*, pp. 2 and 6.

²¹BOWERS, Nathan D. *Creating a Home Culture for the Phonograph: Women and the Rise of Sound Recordings in the United States, 1877-1913*, p. 55.

²²WHITESITT, Linda. *The Role of Women Impresarios in American Concert Life*, p. 161.

²³BOWERS, Nathan D. *Creating a Home Culture for the Phonograph: Women and the Rise of Sound Recordings in the United States, 1877-1913*, p. 241.

²⁴KELLEHER, Kevin D. *The Contributions of Thomas Alva Edison to Music Education*, p. 73.

²⁵CHRISTIE, Nimmo. *The Phonograph — How it May Help Music Teachers*, p. 11.

²⁶EDISON, Thomas A. *Edison School Phonograph*, p. 4.

²⁷BOWERS, Nathan D. *Creating a Home Culture for the Phonograph: Women and the Rise of Sound Recordings in the United States, 1877-1913*, p. 250.

²⁸Especially *The Etude* and the *Musical America* journals.

²⁹FOUNDER, Mark. *Band Lessons by Mail: A Look at Musical Correspondence Schools of the Early Twentieth Century*, p. 1.

³⁰KELLEHER, Kevin D. *The Contributions of Thomas Alva Edison to Music Education*, p. 2.

³¹KELLEHER, Kevin D. *The Contributions of Thomas Alva Edison to Music Education*, p. 88.

courses focused primarily on singing, the piano and bowed instruments, which were the most popular musical instruments at the time.³²⁻³³ The teaching took place in a way that, with the phonograph, the teacher recorded a sample of the composition with which the student had to work and, in turn, the student recorded his rendering and sent it back to the teacher for assessment. This form of education became so popular that it attracted students not only from the US but also, for example, from Europe, Canada and New Zealand.³⁴ In the early 1920s, distant music education started to decline in the US, especially due to the development of the automobile industry and its affordability for the middle class.³⁵

From a historical point of view, Thomas Alva Edison's contribution to music education has received little attention. According to Kelleher,³⁶ Edison's name is mentioned in connection with music education in several works mapping the history of education in the US only to a minimum extent, or not at all. It was the Victor Talking Machine Company that gained a dominant position in the field of music education supported by sound recordings, and not only thanks to its better marketing strategy than that of Edison's. In 1911, a prominent representative of novel educational trends in music education, Frances Elliott Clark, joined the company. In the same year, she established the Victor Educational Department, a division for music education, and focused on creating musical recordings for children of lower primary school age.³⁷ Contrary to Edison, she believed that the sound recordings of professional singers and musical ensembles can contribute to the musical development of children to a significant extent. The first catalogue of recordings for educational purposes was issued by the Victor company in 1911 and, thanks to an extremely positive feedback from the teachers, the catalogue already contained over 3,000 items by the end of 1924.³⁸

In 1914, on the request of several teachers, recordings of professional renderings of children's songs were added to the list of recordings of songs from the classical repertoire to be used in music education. This requirement was voiced mainly by teachers who could not sing in a cultivated way (!). Performers with the right voice were selected by F. E. Clark herself and, in this way, she contributed to a new form of learning by imitation.³⁹ The Great Depression in the late 1930s affected the Victor company, too. Due to a collective layoff, the Music Education Division had to reorientate on the distribution of recordings by a new medium, the radio. In the early thirties, Clark created the first music broadcast for children.⁴⁰

With the arrival of radio broadcasts, the phonograph industry moved somewhat to the background and the three key features of phonograph devices, i.e. portability, affordability, and repeatability of the sound recording,⁴¹ gained a new dimension on the radio. The universality of this medium distributed by electromagnetic radiation and, consequently, the savings on the costs of physical carriers, made radio receivers affordable for a lot more people. While 12,917 pieces were sold of the modern version of Edison's phonograph in 1928,⁴² the estimated sales of

radio receivers in the same year represented 9,500,000 pieces, with an impact on roughly 40,000,000 listeners.⁴³ The repeatability of the sound recordings broadcast over the radio was more reliable since the listeners did not have to physically handle the sound carrier, and the risk of mechanical damage was thus eliminated. In the following period, the potential and impact of radio broadcasting was immense, and it had a significant influence on music education as well.

3 Sound Recording Technologies and Education in the Czech Republic and the Slovak Republic

Technologies meant for creating sound recordings were developed in the US and imported to Europe. However, the approach to their use in education was different in Europe due to the different cultural and social situation. However, a connection may be seen in the starting point of their development: while the invention of the phonograph entered history in the US at a time when elements of the identification of the American national culture were sought, in Europe, it gained ground at a time of changes brought about by the post-war political situation and the new arrangement of the continent. These trends were especially prominent in one of the successor states of pre-war Austria-Hungary, in the First Czechoslovak Republic.⁴⁴ During the first public presentation of Edison's phonograph in the capital of Czechoslovakia, in Prague, representatives of the Edison Company noticed an intensive national revivalist atmosphere in newly formed Czechoslovakia.⁴⁵ Activities to raise national awareness stemmed from a need to integrate the idea of a uniform Czechoslovak nation into the environment of the ethnically diverse population of newly formed Czechoslovakia. Therefore, the production of sound recordings began to focus on national music.⁴⁶

In the field of education, the recordings of the compositions of the major figures of 19th-century national music were a welcome impulse to patriotism in the situation that prevailed in Czechoslovakia. The Central Education Management Body, for good reason called the Ministry of Education and National Enlightenment, started to approve gramophone records as teaching aids for music education in government gazettes issued in the second decade of the existence of the Czechoslovak Republic, i.e. in the 1930s.⁴⁷ In this way, with the help of technology, the students of so-called national (primary and lower secondary) schools could become acquainted with the musical culture of the nation, represented by the compositions of Bedřich Smetana, Antonín Dvořák, or Josef Suk, on gramophone records.⁴⁸

Listening to recordings of music was not an end in itself; appropriate explanations were to be added to it and it had to result in being acquainted with the most important compositions not only of local but also of foreign origin.⁴⁹ Signs of progressive thinking along the lines of the receptive music education that dominated in the US already in the 1910s manifested themselves in Czechoslovakia fully only in the curricula for lower secondary schools in 1932, in a new concept of the course that reflected itself in its name: after the name of the course as "singing", the term *music education* figured, for

³²BOWERS, Nathan D. *Creating a Home Culture for the Phonograph: Women and the Rise of Sound Recordings in the United States, 1877-1913*, p. 250.

³³FOUNDER, Mark. *Band Lessons by Mail: A Look at Musical Correspondence Schools of the Early Twentieth Century*, p. 1.

³⁴FOUNDER, Mark. *Band Lessons by Mail: A Look at Musical Correspondence Schools of the Early Twentieth Century*, p. 3.

³⁵FOUNDER, Mark. *Band Lessons by Mail: A Look at Musical Correspondence Schools of the Early Twentieth Century*, p. 7.

³⁶KELLEHER, Kevin D. *The Contributions of Thomas Alva Edison to Music Education*, p. 1.

³⁷KEENE, James A. *A History of Music Education in The United States* [online], p. 270.

³⁸KEENE, James A. *Giants of Music Education* [online], p. 54.

³⁹KEENE, James A. *A History of Music Education in The United States* [online], p. 271.

⁴⁰KEENE, James A. *Giants of Music Education* [online], p. 60.

⁴¹KATZ, Mark. *Making America More Musical through the Phonograph, 1900-1930*, p. 450.

⁴²Edison Disc Record and Phonograph Sales Statistics (1912-1928). Available at: http://www.mainspringpress.com/edison_disc-sales.html.

⁴³BAILEY, Ruth E. *Mechanical Sound-reproducing Devices: Their Use in Music and Education*, p. 48.

⁴⁴ The Czechoslovak Republic (1918 - 1939) came into being as a democratic successor state of the Austro-Hungarian Empire, the Dual Monarchy, by the self-determination of the Czech and the Slovak nation in the spirit of Wilson's doctrine and by both the nations subscribing to a common Czechoslovak state on 28 (declaration of independence in Prague) and 30 (declaration of the Slovak nation in Martin) October 1918.

⁴⁵STRUŠKA, Jiří. *Mechanical Sound Recording in Czechoslovakia*, p. 811.

⁴⁶STRUŠKA, Jiří. *Mechanical Sound Recording in Czechoslovakia*, p. 811.

⁴⁷ See e.g. Decree No. 47.415-I/1930 of the Ministry of Education and National Enlightenment, Regulating

the Normal Curricula for Primary Schools, 1930, pp. 175 - 294; *Gazette of the Ministry of Education and National Enlightenment*, 1935, year XVII, pp. 26 - 27.

⁴⁸ The above gramophone records were approved by the Decree of the Ministry of Education and National Enlightenment as teaching aids in 1934. (*Gazette of the Ministry of Education and National Enlightenment*, 1934, pp. 26 - 27) and 1935 (*Gazette of the Ministry of Education and National Enlightenment*, 1935, p. 106).

⁴⁹ Decree No. 47.415-I/1930 of the Ministry of Education and National Enlightenment

the first time, in brackets in the curricula. The new dimension of the contents of the music education syllabus is revealed by the formulation of one of the goals of music education, according to which teaching music should “*awaken and continuously educate the perceptive and productive musicality of the youth*”.⁵⁰ The attributes *perceptive* and *productive* suggest a new approach to musicality as a skill not only to produce but also to perceive music. Under the influence of the reformed music pedagogy, the music education syllabi placed emphasis on the ethical influence of music and on cultivating an understanding of the musical compositions, so that singing and music became a cultural need of the personality. The influence of receptive music education manifested itself in prescribing listening to music on gramophone recordings and visiting school concerts and public concerts, as well as on a new medium, the radio, which was eager to reach the public in its beginnings even in the sphere of education, for which it reserved ample room.

With respect to the global development in the field of education, reacting to the invention of the radio as a new medium, the development in Czechoslovakia may be characterized as particularly progressive in this regard. In the territory of Czechoslovakia, the radio regularly broadcast from May 1923, and music and children’s programmes figured among the programmes of the Czechoslovak radio broadcasting from the very beginning. The basic programme structure of the broadcasting consisted of news, lectures, recitals and concerts of live music. Music arranged into thematic cycles formed a separate part of the broadcasting.⁵¹ The contents of the programmes meant for children listeners often had a distinct patriotic and national character,⁵² with a more intensive inclination to the ideas of conscious citizenship and democracy in the 1930s.

Discussions about the establishment of a separate school radio whose broadcasting would be prepared in collaboration with specialists from the field, with teachers and with the state school administration, and which would take place according to the school timings of the national schools, began in Czechoslovakia in 1926.⁵³ The first attempt at broadcasting in line with the didactic principles was carried out on the occasion of the celebrations of the birth of Czechoslovakia on 28 October 1929. In the following year, a separate body, the School Radio Commission, was established under the Ministry of Education and National Enlightenment for the management of the radio.⁵⁴ From 1930, broadcasting for schools was carried out on a systematic, regular, long-term, and carefully worked out basis with respect to quality and organization.⁵⁵ The contents of the programmes were adjusted to the syllabi and the age of the listeners, and divided into a literary and musical part. The music programmes focused on various musical genres, instruments, composers and their works. The music programmes for the youngest listeners consisted of a simpler musical content, e.g. from simple musical motifs to practice singing in the programme called *The First Steps to Music Education by Singing*.⁵⁶ After 1935, a programme called *Let’s Sing* was dedicated to pupils of the first to third year of primary schools.⁵⁷ For the generation of youth at secondary schools, programmes like *Rhythm in Music*, *Human Voices*, or *Musical Instruments*, and programmes on the history of music with samples from compositions were produced.⁵⁸

The Ministry promoted the broadcasts by recommendations and by contribution to the purchase of radio receivers for the schools. A separate technical division of the School Radio Commission dealt with the technical issues connected with the operation of the receivers and the placement of the devices, taking into account the acoustic features of the school rooms. Listenership of the school programmes moved around 50% in the early phase of the school radio broadcasting.⁵⁹

From 1925, the majority shareholder of the radio in Czechoslovakia was the Czechoslovak State Post under the Ministry of Posts and Telegraphs, which meant that radio broadcasting was at the hands of the state.⁶⁰ Due to the politically supported operations of the school radio in the environment of compulsory schooling,⁶¹ music education aided by technologies and mass media became part of the platform on which the official ideology of the state functioned systematically. However, the condition of the facilities in Czechoslovak schools, especially in economically less developed Slovakia, often failed to reflect the progressive trends in education. Nevertheless, the above measures, applied on a systematic level based on school legislation documents and curricula, demonstrate that the use of technologies in music education at the general educational level played a role as a supporting tool to build the political and state system of Europe and were also part of the progressive movement of European music education in the first half of the 20th century.

In the field of education, the period of World War II, whose events brought about, among other things, the division of Czechoslovakia, was a time of stagnation and drawing upon the achievements of the dynamic development of the education system in the First Czechoslovak Republic. The phonograph acquired a new function even during World War II when it served as a tool to maintain the national awareness of the population.⁶²

The broadcasting of the school radio, as well as the use of the gramophone in education, played a significant role at this time even in the territory of previously economically less prosperous Slovakia, compared to Czechia. This is documented by the contents of the methodical guide to the first coursebook of music education from the period of the First Slovak Republic (1939 – 1945), *Young Singer* by Ladislav Stanček and Jozef Vronč (1941). The broadcasting of the school radio continued to be part of the extracurricular music education. While a distinct nationalist element stands out in the contents of the above-mentioned teaching material which is, on the other hand, progressive from the didactic aspect, the broadcasting of the school radio reflects the historical realities of the “*aggressive interventions of propaganda, ideological manipulation and tensed undemocratic atmosphere*”.⁶³

After the end of the war, the phonograph industry in Czechoslovakia continued to focus on the preservation of the cultural heritage of the nation and on raising national awareness.⁶⁴ Its business aspect, prevailing at that time in the US, was not much present.

4 Conclusion

The historical connections of the birth of the sound recording technology and, especially, the reasons that led the inventors to these achievements, are yet to be researched in depth. The study of the materials of the time, and also of partial outputs from later periods, reveals that the most significant source of inspiration for

⁵⁰ Decree No. 69.485-I/1932 of the Ministry of Education and National Enlightenment

⁵¹ KÍČKOVÁ, Andrea. Školský rozhlas alebo vzdelávanie a výchova prostredníctvom éteru [The School Radio, or Education by the Ether], p. 45.

⁵² BOROŠ, Tomáš. Hudba pre deti v rozhlasovom vysielaní na Slovensku [Music for Children in the Radio Broadcasts in Slovakia], pp. 153 – 164.

⁵³ KÍČKOVÁ, Andrea. Školský rozhlas alebo vzdelávanie a výchova prostredníctvom éteru [The School Radio, or Education by the Ether], p. 45.

⁵⁴ KÍČKOVÁ, Andrea. Školský rozhlas alebo vzdelávanie a výchova prostredníctvom éteru [The School Radio, or Education by the Ether], p. 47.

⁵⁵ BOROŠ, Tomáš. Hudba pre deti v rozhlasovom vysielaní na Slovensku [Music for Children in Radio Broadcasting in Slovakia], 2012, p. 158.

⁵⁶ KÍČKOVÁ, Andrea. Školský rozhlas alebo vzdelávanie a výchova prostredníctvom éteru [The School Radio, or Education by the Ether], p. 49.

⁵⁷ KÍČKOVÁ, Andrea. Školský rozhlas alebo vzdelávanie a výchova prostredníctvom éteru [The School Radio, or Education by the Ether], p. 54.

⁵⁸ KÍČKOVÁ, Andrea. Školský rozhlas alebo vzdelávanie a výchova prostredníctvom éteru [The School Radio, or Education by the Ether], p. 59.

⁵⁹ KÍČKOVÁ, Andrea. Školský rozhlas alebo vzdelávanie a výchova prostredníctvom éteru [The School Radio, or Education by the Ether], pp. 47 – 61.

⁶⁰ KÍČKOVÁ, Andrea. Školský rozhlas alebo vzdelávanie a výchova prostredníctvom éteru [The School Radio, or Education by the Ether], p. 45.

⁶¹ DOBROCKÁ, Soňa. Prekonávanie rozdielov systému slovenského a českého školstva v medzivojnovom Československu [Overcoming the Differences in the Slovak and the Czech School System in Interwar Czechoslovakia], pp. 337 – 339.

⁶² STRUŠKA, Jiří. Mechanical Sound Recording in Czechoslovakia, p. 811.

⁶³ BOROŠ, Tomáš. Hudba pre deti v rozhlasovom vysielaní na Slovensku [Music for Children in Radio Broadcasting in Slovakia], 2012, p. 159.

⁶⁴ STRUŠKA, Jiří. Mechanical Sound Recording in Czechoslovakia, p. 811.

the birth of new technologies was an effort to support music education more extensively. In the twentieth century, sound recording technologies underwent several substantial changes in their development but, paradoxically, began to gradually disappear from the music education process. Currently, they are used primarily in the professional field, although more and more discussions are going on about educational programmes where they would become the object of education with the aim to train professional sound engineers.

In Slovakia, specialized institutional training of sound engineers began only by the establishment of the Film and TV Faculty of the Academy of Performing Arts in Bratislava in 1990⁶⁵ in spite of the rich history of this field reaching back to 1965 and to the beginnings of the Experimental Studio of the Czechoslovak Radio in Bratislava.⁶⁶ The Sound Department of the Film and TV Faculty of the Academy of Performing Arts trains sound engineers but focuses exclusively on the field of film sound and produces graduates to work in the film and television industry.

Education specializing on working with sound and on sound production was accredited in Slovakia only in 2016 at Constantine the Philosopher University in Nitra, and the course is called Music and Sound Design. The programme specializes on producing graduates with practical training in recording technologies and musical dramaturgy. The programme takes place on the bachelor as well as master level, and both consist of technologically oriented courses (basics of acoustics, spatial acoustics, information technologies, sound design) with music-theoretical and practically oriented courses (music theory, aural analysis, history of music, musical analysis). An important role in the Music and Sound Design study programme is played by practical music-making in the form of choir singing, and students with performance skills can choose to learn an obligatory musical instrument, too. The master programme focuses partly on the new field of intangible cultural heritage in the form of the preservation of the acoustic features of significant cultural monuments or of the historically significant recordings of music.

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