

Analysis of the Current Situation and Trend of Chinese Music Education Under the Framework of Supply and Demand Theory

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ABSTRACT

Through reading a large number of literature, this paper first explains the definition of music education, and then studies the current situation of Chinese music education from the perspective of supply and demand analysis framework. On the demand side, the author uses PEST model to analyze the value of music education, the long-term benefits of policy and the continuous demand driven by consumption upgrading. In the supply side, the author summarizes the education system and teaching methods of music education from online teaching and offline teaching. Finally, this paper analyzes the intelligent / AI teaching, teacher training system and Yamaha music school national comparison, and discusses the future development trend of Chinese music education.

Keywords: *Music Education, Online Sparring, AI + Education, Yamaha Music School*

1. INTRODUCTION

Music and mood are important forms of people's emotions. Music education can not only impart music theory knowledge and enhance appreciation ability, but also enhance spiritual realm and personal temperament. However, there are still some problems in China's music education industry, such as the uneven distribution of teaching resources, the scarcity of high-quality teachers and teaching and research resources, which has aroused widespread social concern. In addition, the Ministry of education clearly proposed that "by 2020, we should initially form a high school entrance examination enrollment mode based on the academic level examination results of junior high school and combined with comprehensive quality evaluation", so that the quality education represented by music education ushered in a good opportunity for development again.

In terms of theoretical significance, (1) as far as the research content is concerned, the academic articles on this topic are relatively inclined to the perspective of macro policy suggestions; this paper starts from the theoretical analysis framework of supply and demand, builds PEST analysis model, and combines with the interpretation of authoritative data to comprehensively and deeply explore the development of music education.(2) In terms of research methods, this paper uses the method of national comparison, data analysis, case analysis and other academic methods to analyze. In terms of practical significance, the report on the development of China's music industry in 2018 pointed out that the total scale of China's music industry in 2017 was about 347.094 billion yuan, of which the scale of music education and training

reached 79.2 billion yuan, accounting for 22.8%. The non-standard attribute of music education determines the core position of teachers in the teaching process, and then institutions have high dependence on teachers and low bargaining power. At the same time, excellent music teachers training time is long, difficult to copy, institutions in the process of expansion need to face the risk of instability in the supply of teachers, music education scale is facing difficulties. In recent years, with the application and development of Internet technology, the teaching mode of music education has been innovated, and the progress of industry standardization has been started. As covid-19 broke out at the end of 2019, offline learning will be suspended, and music education will be turned to online. It is expected that the concentration will be greatly improved in the future.

2. DEMAND SIDE ANALYSIS

2.1. Sociology

2.1.1. Theory of multiple intelligent structures

The theory of multiple intelligences (MI theory for short) was put forward by American educator and psychologist h. Gardner. Music intelligence in the theory of multiple intelligences refers to the ability of students to perceive sound quality, tone, melody, rhythm and emotion through music learning, and to express their thoughts or feelings through composing, playing and singing. Learning music can improve students' appreciation level, improve their

music literacy, and then enhance their ability to express their emotions and ideas with the help of music, so that students have elegant temperament and noble pursuit, and become fully developed and cultural talents. It is undeniable that music is an important part of people's life and an important way of leisure and entertainment. The formation and development of students' musical intelligence is conducive to students' enjoying life and facing life with a positive and sunny attitude.

2.1.2. Automated assumption generation

As shown in Figure 1, human needs are divided into five levels from low to high: physiological needs, security needs, social needs, respect needs and self realization needs. Music belongs to the needs of self realization in the advanced stage.

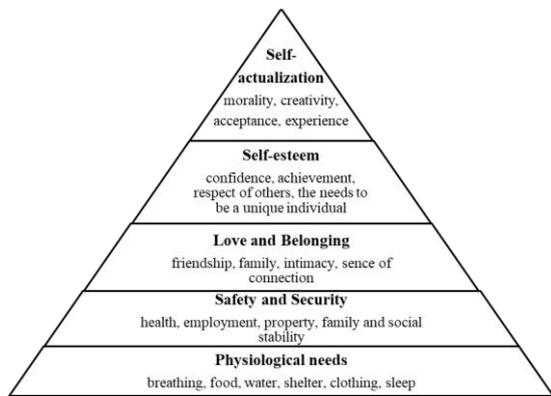


Figure 1 Maslow hierarchy of needs

2.2. Policy: comprehensive quality evaluation system to replace the policy of adding points in the college entrance examination

The policy is good for a long time. In recent years, it has changed from the direct bonus points to the comprehensive quality evaluation system. Over the years, the policy of bonus points for art majors has gradually cultivated the market demand for art education. In 2014, the State Council issued a document to cancel sports, art and other special students' bonus points from 2015. However, the state still attaches great importance to art education, and then published the opinions on strengthening and improving the comprehensive quality evaluation of ordinary high school students, and the artistic quality was included in the comprehensive quality evaluation system. The comprehensive quality evaluation system has been initially established, which can be used as the basis for enrollment. The Ministry of education has clearly put forward that "by 2020, we should initially form a high school entrance examination enrollment mode based on junior high school academic level examination results and

combined with comprehensive quality evaluation". At present, Beijing, Shanghai, Guangdong, Zhejiang, Tianjin and other provinces and cities have issued relevant implementation measures or guidance. Although there are different opinions on how to apply the comprehensive quality evaluation files, they are clearly mentioned as a reference for further education.

2.3. Economy: consumption upgrading continues to stimulate the demand for music education and improves the education evaluation system, which is recognized by consumers

Economic development promotes the continuous optimization of consumption structure, and consumption upgrading continues to stimulate the demand for music education. As shown in Figure 2, the per capita disposable income of urban and rural residents in China reached 28200 yuan in 2018, and the CAGR reached 9.04% in 2013-2018. The continuous growth of income and the improvement of people's living standards drive the optimization of consumption structure. Since 13 years ago, the proportion of residents' consumption in food, tobacco, wine and clothing has been declining, while the proportion of education, culture and entertainment expenditure in consumption expenditure has shown an increasing trend. With the continuous growth of economic volume, the increase of the proportion of residents' income and education expenditure will provide a solid economic foundation for the development of education, including music education.

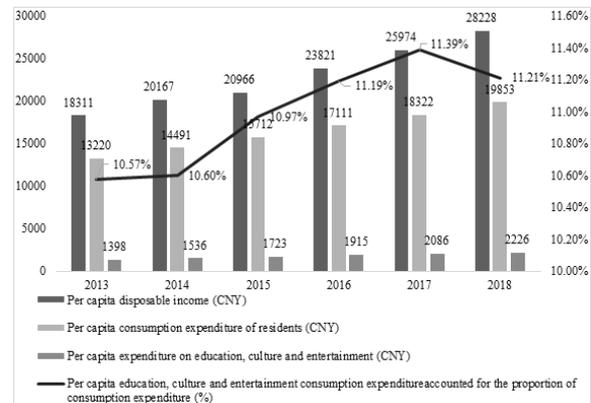


Figure 2 Analysis of per capita disposable income and expenditure of Chinese residents from 2013 to 2018

The perfect examination system provides the standard for testing the teaching quality, and the "export" complete music education is favored by consumers. For most quality-oriented education track, there is still a relative lack of "export" in teaching quality inspection. For example, children's programming and robot education rely on events to provide teaching quality inspection. However,

a mature competition system needs a long time of accumulation and operation, and all kinds of training institutions are operating separately, which leads to the endless emergence of various competitions in the market, and it is difficult for consumers to distinguish the authority of the events, which leads to the weakening of the enabling value of the events. Music education relies on the social examination system which has been developed for many years, so it has great advantages in teaching "export". The perfect grade examination system and the evaluation system with social credibility also make music education popular among consumers. As shown in figures 3 and 4, according to the consumption report of 2017 Chinese Family Quality Education released by Ruiyi, art courses are still the most popular quality education courses selected by parents, among which music training programs account for the highest proportion, accounting for 50.4%.

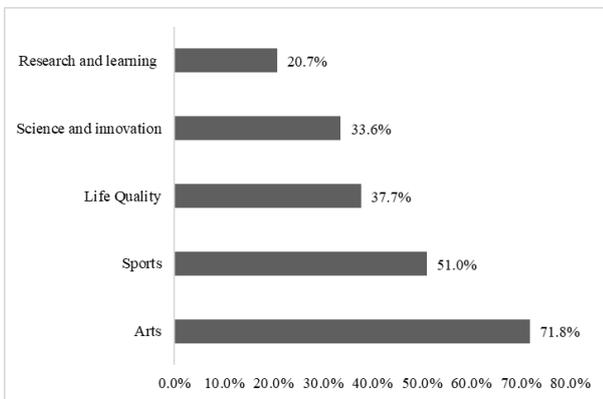


Figure 3 Art accounts for the highest proportion of quality courses selected by parents

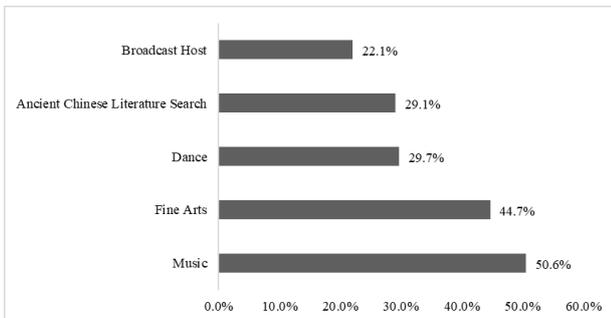


Figure 4 Music education is preferred in art courses

3. SUPPLY SIDE ANALYSIS

3.1. Offline Teaching

3.1.1. The competition of offline piano companies is highly dispersed and only regional leaders

The competition of traditional offline music companies is highly dispersed. Music training schools have regional characteristics, and most of the national schools are franchised. According to the survey of Chinese piano industry data research center, the number of piano companies in China has approached 300000, while the number of outlets of the largest music training school is only a few hundred, which shows the degree of industry competition dispersion.

The highly decentralized competition pattern makes the institutions in the industry generally have regional characteristics, as shown in Table 1. For example, bosom friend culture focuses on the Yangtze River Delta region, and all its 20 schools are set up in Shanghai and Jiangsu. In addition, there are Philharmonic music company in Shenzhen and Tongli piano company in Hong Kong. At present, most music training institutions covering the whole country are franchise brands, such as Roland digital music education and guitar China mushroom Education Alliance. In addition, bass is a direct marketing enterprise in China. It has 100 stores in Hong Kong and Mainland China, and has covered 26 cities in China through more than 90 music and art training schools.

Zhiyin culture is an instrument retailer and wholesaler in the Yangtze River Delta region, and an art education and training service provider. The company has two major art school brands: Tianyu Zhiyin art education school and Zhiyin music and art specialized school. It has set up more than 30 art schools in Shanghai and Jiangsu, with more than 700 teachers and a total of more than 100000 students. The curriculum system is divided into four modules according to different ages. The school curriculum mainly focuses on piano education, and the curriculum system is divided into four modules for different age groups: music angel, little musician, piano talent class and adult music enjoyment class, covering the children to adult stage. There are still gradients in each course module. Taking the one-on-one piano talent course as an example, it is divided into seven stages, with 15-30 class hours in each stage, from basic music theory knowledge to play skills and then to comprehensive music literacy, teaching children step by step. In addition, the school also uses multimedia teaching, app, digital course scheduling software and other advanced technologies to optimize the user experience.

Table 1 Profile of some offline music education schools

Name	Brief Introduction	Number of students and teachers		Number of offline schools		Coverage area	
Parsons Music	It is a comprehensive musical instrument enterprise integrating "musical instrument manufacturing, sales, education and culture". It is the seventh largest musical instrument retailer in the world and the top three piano enterprises in the world. At present, it has 100 stores and more than 500 agents in the mainland and Hong Kong.	More than 4000 teachers and 35000 students	90+	More than 20 provinces in China	<i>Time(s)</i>	<i>MQ</i>	<i>Time(s)</i>
Roland digital music education Guitar China mushroom Education Union Bosom friend culture	Main audio and video network integration teaching and musical instrument sales. The expansion mode of direct marketing and franchise is adopted for nationwide distribution. It has training course system of electric drum, electric piano and electric guitar.	The total number of trainees is more than 800000	Direct 50 +, join 400+	Whole country	1.5	25	2.7
	Join the brand, provide a full range of solutions for Guitar / drum training and sales agencies all over the country. Relying on the influence of guitar China website, its registered users reach 1.37 million.	/	303	29 provinces in China	1.8	25	2.9
	It has 24 stores in Shanghai and Jiangsu. Enterprises listed on the new third board had a revenue of 452 million yuan in 18 years, with a net profit of 17.2312 million yuan.	There are more than 500 teachers and more than 10000 students	30+	Shanghai, Zhejiang	2.4	25	3.9

3.1.2. Teachers are less dependent on institutions, and famous teachers are hard to copy

The highly decentralized competition pattern is due to the teacher centered feature of the offline e-learning model, which is characterized by low dependence on institutions and hard to replicate famous teachers. On the one hand, the process of music education pays more attention to skill

teaching than knowledge learning, and the learning of skills must be constantly practiced and corrected under the guidance of teachers. In the one-on-one course, it is easy for students to recognize teachers but not institutions. On the other hand, excellent music teachers are hard to copy. It is impossible for other teaching and training fields to use standardized teacher training system to quickly create teachers in the field of music, because the cultivation of music literacy needs a long time of practice, polishing and accumulation.

The core position of teachers in music education leads to the low bargaining power of music training institutions for teachers, the high loss rate of teachers, and the difficulty of copying teachers. In addition, the organization faces the risk of unstable supply of teachers in the process of expansion, and finally leads to the difficulty of music education to scale.

3.2. Online Teaching -- online practice

Online practice is unique to music education, which makes the practice in the process of music education independent as a separate business model. In the process of music education, the existence of practice demand and the objective reality of parents' lack of professional guidance ability gave birth to the model of accompany practice. Low price and convenience are the two competitive advantages for the rapid growth of online accompaniment. The skill learning attribute of music education makes after-school practice an indispensable learning process. However, due to the limitation of their professional level, parents can not guide their children to practice and correct mistakes in time, which creates a market space for the music accompaniment industry. VIP, Xiaoye and Kuai Because the main purpose of accompany practice is to complete the practice after class, review and correct the classroom content according to the requirements of the main course teacher, the teaching difficulty is relatively low, and the requirements for communication and interaction between teachers and students are also low.

Online practice can be realized with the help of intelligent hardware facilities. Compared with offline training, online training is not constrained by time and place, more convenient, and the price is more affordable. The class price is less than 100 yuan, which is far lower than the offline education and training fees.

The online training process is similar, and the differences are mainly reflected in the training mode, the matching intelligent hardware and the types of musical instruments, as shown in Table 2. At present, the online practice process of each enterprise is relatively consistent, but there are some differences in the mode. For example, Xiaoye uses AI + human training mode, and the other two are online 1v1 mode. In addition, there are some differences in the choice of intelligent hardware among the three enterprises, but the purpose is to observe the students playing process. The fish eye camera is used to cover the piano keys for VIP practice and fast practice, while the intelligent light bar is used for small leaf accompaniment practice, which can not only digitize the performance process, but also realize lamp following practice and encourage children to learn independently. In terms of applicable musical instruments, limited by the communication form of online communication, it is difficult for instruments involving more fingering skills to carry out online training. Therefore, Xiaoye and Kuai Pei only provide piano training business, and only VIP accompaniment has launched the service of zither, violin and accordion.

Table 2 Teaching modes of three online music schools

Mechanism VIP practice	Sparring mode Online 1v1	Unit price of class hour		Types of musical instruments		Intelligent hardware	
		33- 73element	Piano, guzheng, violin, accordion	Fisheye camera: full coverage of 88 piano keys	Time(s)	MQ	Time(s)
Xiaoye's training Practice with me Mechanism	Human + AI	About 84 yuan	piano	Intelligent light bar: the performance process will be digitized; follow the lamp practice, encourage children to learn independently	1.5	25	2.7
	Online 1v1	80element	piano	Two way fisheye camera: covering piano keys and observing children's learning state	1.8	25	2.9
	Sparring mode	Unit price of class hour	Types of musical instruments	Intelligent hardware	2.4	25	3.9

4. ANALYSIS OF THE FUTURE DEVELOPMENT TREND OF CHINA'S MUSIC EDUCATION INDUSTRY

4.1. New technology / AI, release the pressure of Teachers

With the help of intelligent music teaching equipment and software, the teaching process and practice process can be digitized. Teachers can use the data for accurate guidance, improve teaching efficiency, and then improve the ratio of students to teachers. The most important step of intelligent teaching is to use intelligent teaching equipment to record students' learning process in a digital way, replace teachers' supervision of students' practice with technology, and present objective exercise results to teachers intuitively and clearly. With the help of practice reports, teachers can accurately and quickly understand the situation of students, and provide differentiated and accurate guidance for different students. With the help of technology, teachers' time can be spent on the edge. On the one hand, it improves the teaching efficiency, on the other hand, it greatly increases the number of individual teachers tutoring students at the same time, thus improving the teacher-student ratio.

AI can assist teaching to a certain extent, and make use of timely data feedback for error correction and progress. On the basis of data-based learning process, AI can help teachers and students to teach and judge the learning effect to a certain extent. For example, the artificial intelligence accompaniment Orchestra independently developed by the philharmonic society can change the performance skills into readable skill symbols, capture the performance movements, and collect the data of standard posture, so that students can imitate the performance changes and achieve the performance goals efficiently. And through the sound intelligence analysis, the students' performance effect is compared with the standard performance, and the real-time guidance of the pitch and rhythm is carried out.

In addition, through the intelligent processing of traditional teaching materials, students' autonomous learning ability can be improved conveniently. Intelligent music education equipment can reduce the pressure of teachers' one-to-one guidance by changing the traditional teaching materials intelligently and playfully. Students can learn and practice on the intelligent music equipment independently. Take find smart piano as an example, it has collected more than 2000 pieces of music and more than 2000 teaching courses. Students with basic knowledge can follow the simulation operation of intelligent teaching system for self-study.

To sum up, under the intelligent / AI teaching mode, the pressure of teachers in enterprises is released, and the scale of enterprises is assisted by technical means.

4.2. Establishing teacher training system and creating replicable teaching system

Music education is a typical non-standard education, and the current training mode is to standardize the most suitable part of the training. Music education is a process of skill learning, so it needs to spend a lot of time to practice repeatedly. The existence of practice needs and the objective reality of parents lack of professional guidance ability gave birth to the model of accompany practice. However, accompany practice is different from teaching. Its main purpose is to help children review the knowledge and skills they have learned, correct the mistakes in the practice process, and supervise and encourage them to insist on practicing the piano. The knowledge involved is relatively stable and the accompanying practice process is more standardized, which is suitable for carrying out standardized teaching.

The professional barriers of music education itself are high, and excellent music education teachers are always in short supply. After the independent treatment of accompany training, the overall requirements of teachers will be reduced, and the reproducible teaching mode can be further realized through standardized teacher training system. Due to the high professional barriers of music education itself, it is difficult to cultivate good music literacy in a short time. Therefore, excellent music education teachers are always scarce and expensive. However, compared with music teaching, accompaniment does not require teachers to have strong music literacy or rich teaching experience, so it can be quickly created and copied through standardized training system. Taking VIP practice as an example, it has established a standardized teacher training system. Through the internal process, tools and content library of the system, the quality control and assessment of the whole process are implemented, and at the same time, a complete advanced channel is provided for teachers. New recruits can enter the probation period only after being screened by the Department's assessment, induction training and simulation training, and the final pass rate is controlled within 20%. Under the support of the system, there is no threshold for the recruitment of teachers in VIP practice, and hundreds of recruitment sites have been established in China. The standardized teacher training system ensures the uniform service provided by different accompanying teachers and makes the teaching mode gradually replicable, which is an important part of the scale of music education.

4.3. Overseas benchmarking

Whether it is intelligent / AI teaching or online practice, the problem to be solved is how to improve the standardization of music education. In the stage goal, it can be divided into several stages, such as teacher system, teaching materials, teaching process, practice process and teaching results. Through the standardization of each

subdivision dimension, the ultimate standardization and replicability of music education can be gradually solved. Yamaha music education is a leader in the field of teaching standardization. With its standardized music training system, Yamaha music training has set up 7600 music centers in more than 40 countries and regions around the world, with a total of more than 5 million students, as shown in Figure 5. Next, the author will take Yamaha music education teaching system as an example to provide reference for the development of music education enterprises in China.

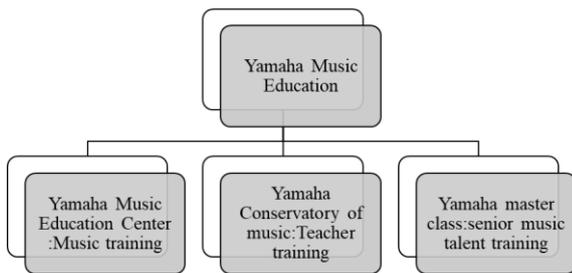


Figure 5 Yamaha music education system structure chart

1) From the perspective of standardization of teacher system, Yamaha's music education originated in 1954. The whole music education system includes Yamaha Music Center, Yamaha Conservatory of music, Yamaha master class, etc. Whether it is the resources of popular music education teachers or master musicians, Yamaha's own system is constantly supplied with energy.

2) From the standardization of teaching system. First of all, in terms of teaching materials, Yamaha's training materials and system are synchronized in the world. Yamaha's teachers are from professional music colleges. The outstanding ones are selected through the first round of examination, and then they are trained for half a year by Yamaha's teachers, and they can only take up their Posts after passing the Yamaha music ability examination. Secondly, from the perspective of standardization of teaching process, Yamaha's curriculum is set and continued according to the characteristics of different ages of children. After 50 years of research and practice, Yamaha experts have set learning objectives for students at various stages. Finally, from the perspective of the standardization of teaching results, Yamaha has created its own music ability test system. The content of the examination includes not only the performance of optional music, but also the parts of visual performance, listening and improvisation that emphasize the comprehensive creative ability. At present, more than 9.5 million people have applied for the examination, which is not only recognized as a standard to evaluate music ability in Japan, but also implemented in more than 40 countries and regions in the world.

5. CONCLUSION

Music education has a long history of development, high consumer acceptance and a perfect evaluation system, but the non-standard characteristics are significant, which makes the scale of music education enterprises in the past exist pain points. In recent years, with the application and development of Internet technology, the business model of music education has been innovated, the progress of industry standardization has been started, and the concentration degree is expected to be greatly increased in the future. Whether it is intelligent / AI teaching or online practice, the problem to be solved is how to improve the standardization of music education. In the stage goal, it can be divided into several stages, such as teacher system, teaching materials, teaching process, practice process and teaching results, and gradually solve the pain points of music education through the standardization of each subdivision dimension. From the experience of Yamaha, an overseas giant, the standardization of music education will not stop at practice. What the industry ultimately wants to achieve is based on the standardization of teacher system and teaching system, so as to promote enterprises to scale. It is the first step to realize the standardization of teaching process and teaching feedback through the upgrading of technical means. But ultimately, the industry still needs to standardize the teaching process to achieve large-scale, especially to polish the teacher system and teaching system. The accompanying practice mode born under the Internet technology has partly solved the problem of teaching standardization and realized the preliminary scale. The application of 5g and other new technologies will further promote the development of Internet music teaching in the future. Based on standardized teaching and research and product polishing, some enterprises are expected to achieve full standardization of teaching process.

Due to space limitation, this paper fails to elaborate on the market scale and competition pattern of music education. The author will further analyze it in this direction in the future.

REFERENCES

- [1] Cristina Rolim Wolffenbüttel. Music and music education research in Brazil - Ethical issues, Wolffenbüttel[C]// V Brazilian Meeting on Research Integrity, Science and Publication Ethics (V BRISPE). 2020.
- [2] Wallbaum C . Summary Comparing Normative Constellations in Music Education[M]// Comparing International Music Lessons on Video. 2020.
- [3] Bennett D , Macarthur S , Hennekam S . Developing inclusive practices in higher music education: A study

of women in composition[C]// 23rd Commission on the Education of the Professional Musician. 2020.

[4] Walton J . Conceptualizing Assessment in Higher Music Education as a Social Practice: A Theoretical Framework for Research[M]// *Advancing Music Education Through Assessment: Honoring Culture, Diversity, and Practice—Selected Papers from the Seventh International Symposium on Assessment in Music Education*. 2020.

[5] Koivisto T A , Kivijrvi S . Pedagogical tact in music education in the paediatric ward: The potential of embodiment for music educators' pedagogical interaction[M]// *Music in Paediatric Hospitals: Nordic Perspectives* (peer-reviewed, Eds. L.O Bonde & K. Johansson). 2020.

[6] Mawusi E F , Klutse E , Kwadwo, et al. The Role of Technology in Music Education: A Survey of Computer Usage in Teaching Music in Colleges of Education in The Volta Region, Ghana[J]. 2020.

[7] Oğuzhan Atabek, Burak S . Pre-school and primary school pre-service teachers' attitudes towards using technology in music education[J]. *Eurasian Journal of Educational Research (EJER)*, 2020, 2020(87):47-68.

[8] Rinholm H , Varky I . MUSIC EDUCATION FOR THE COMMON GOOD?: BETWEEN HUBRIS AND RESIGNATION: A Call for Temperance[M]// *Humane Music Education for the Common Good*. 2020.

[9] Baydag C . The importance of music education on developmental features of the handicapped individuals[J]. 2020.

[10] Avanzini F , Adriano Baratè, Ludovico L A , et al. A multidimensional taxonomy of digital learning materials for music education[M]// *Pedagogies of Digital Learning in Higher Education*. 2020.