



Harmonizing Traditional Music And Digital Innovation: A Review On Technological Expedition Of Indian Music Education

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Abstract

Indian Classical Music is one of the finest music styles in the world, which has had a profound impact on people since the Vedic era. People adored and admired Indian Classical Music, and they were very curious to listen as an audience and learn as students. This paper discusses how Indian Classical Music was taught in the earlier days in the Gurukul System in Ashrams, and as the days passed, a face-to-face institutional setup was arranged, and music was taught in such a format. Later, due to the emergence of technology and Globalization, people started migrating to different places in the world, leaving their culture in their home country. After some time in the early 21st century, Non-Resident Indians who migrated from India for a better future, settling abroad, wanted to follow Indian culture and traditions, which they were missing. So, they decided to take the help of technology and feel at home by following their cultures and traditions. Music, being a part of Indian Culture and traditional heritage, was also a favorite activity, which they want to keep with them by learning traditional music from India from their beloved Gurus and Teachers. This paper includes and concludes how technology gave a helping hand to people who resided abroad or away from their Guru and pursued music enthusiastically. What are the benefits and challenges faced in learning through Virtual Mode in the initial stages of emerging technology versus now? Also, apart from the different software and apps developed for music learning, what are the latest developments in tools of

learning tools through AI that will be discussed to make this review paper useful for future researchers regarding the application of technology in Music Art.

Keywords: Indian Classical Music, Music Apps, Internet tools, Music Software, Artificial Intelligence, Music and Technology

Introduction

Indian Classical Music is one of the finest music styles in the world, which has had a profound impact on people since the Vedic era. People adored and admired Indian classical music, and they were very curious to listen to it as an audience and pursue it as a student. This paper discusses how Indian Classical Music was taught in the earlier days in the Gurukul System in Ashrams, and as the days passed, a face-to-face institutional setup was arranged, and music was taught in such a format. Later, due to the emergence of technology and Globalization, people started migrating to different places in the world, leaving their culture in their home country.

People who were missing their culture away from their homeland wanted to protect the existence of their fine arts cultural heritage, and so they started looking for different ways to continue the legacy of Indian fine arts. Music is one of the sixty-four fine arts. It is not only one of the sixty-four fine arts but also unique among all the sixty-four fine arts. It is the major branch of fine arts. Indians have great respect and adore Indian Music as it is one of the oldest music systems in the world. As we are aware that Indian classical music is derived from the *Samaveda* of Indian culture. The *Guru Shishya Parampara* system of learning is prevalent in India. Parents send their children to the Guru's Ashram and ask them to seek education. Since then, there has been a transformation that took place in the style of teaching, which moved from Ashrams to Fine Art Schools, Colleges, and then later to online learning due to the advancement of technology, with the use of Software and other application tools.

These Software applications and tools helped a lot to the learners in saving time and accessing the knowledge whenever and wherever needed. We will now see how this advancement of technology in learning traditional Indian Music emerged with the help of advanced tools in this research paper.

Literature review

Literature review of this article includes the review of information taken from the research articles related to traditional Indian Music, the role of technology in making the use of music more user-friendly. The role of Artificial Intelligence in music, like in various other fields, and also the use of software applications related to music in relating computer science to traditional musical art. There are many articles related to the literature review of traditional Indian music and the emergence of Advanced application tools, which show the role of technology in modern-day music education.

Problem Identification

The main problem for people who migrated to different places of the world from India and could not continue to learn Indian Classical Music from India, due to a lack of Indian Classical Professionals all over

the world. These professional teachers and artists stayed in India only, and the heritage of Indian classical music remained in India only.

Imparting Music Knowledge is an inevitable activity that needs to be carried out by professional music teachers. But how?

This is the major problem faced by students in the early 20th century who wanted to learn from distinguished professionals of music from India.

Also, how far is distance learning from Gurus through Online is helping the students learning outside India?

Methodology

The research methodology followed in this research article is qualitative research, as this paper includes the observations and experiences seen in the author's life and the journey of the author with the time-to-time advancement of the technology. In this methodology, the exploration of different ways of learning music with the help of technology. Different software applications and tools used to make distant learning simpler and knowledge to be gained or practice skills to be developed in the absence of a Guru, and with the help of technology, are discussed.

Analysis and Interpretation

The following is the analysis and interpretation of the usage of technology in learning traditional Indian music over a period of time through different mediums of learning.

Radio

The contributions of All India Radio towards Indian Classical Music are highly commendable.

The encouragement and professional life given to artists are highly appreciated. It has given a platform for many performers to prove their mettle.

Apart from performing, even the artists had the opportunity to share their knowledge with the world through All India Radio. There is a programme that was started and aired in early 1980 and has continued to date. The name of the programme is "Sangeetha Sikshana". In this programme, a Music Guru teaches a music-related topic to a student who comes for class and learns the composition taught by the Guru. This is called "Sangeetha Sikshana," meaning Music teaching.

Audio Cassettes and mini recorders

During the early 80s, audio tapes were widely used for recording. These recordings were done with cassettes in Tape Recorders. Students who resided away from India, during their visit to India, used to visit the Gurus in person to attend face-to-face classes and take the audio recordings of the lessons taught by their Gurus in India. These tapes, when carried to foreign countries, acted as substitutes for the absence of the Guru's presence. In such a way, they started learning in a distance mode by attending contact classes during their visit to India. This solved the problem of missing the music knowledge from India.

Later on, this system of learning became successful, and so students followed it whenever they wanted to learn Indian Classical Music. As time moved and due to the emergence of technology because of globalization, portable Walkman audio recorders were manufactured for easy recording and playing of audio. These imported Walkman recorders from other countries like Japan, South Korea, China, etc. helped in easily collecting the audio data of the lessons from Indian Classical Gurus. Walkmans were very portable, unlike tape recorders, so they preferred Walkmans to Huge tape recorders.

During the same period, many music companies have approached popular musicians to record their performances in their music studios. Music learners and lovers used to learn and enjoy their music.

Emergence of Computer technology and its related devices and tools

With the beginning of the computer age, music information was stored on floppy disks and CDs. These storage devices helped a lot and slowly became substitutes for cassette recordings. At this point, tape-to-CD converters were also in demand as the music on cassettes needed to be converted, considering the durability of the tapes.

Videos of the lessons taught to students and concerts of great musicians were preserved for future reference.

Video recordings of the classes were useful in knowing the aspects of the *talas* of the compositions and

Later in the early 2K, cell phones and pen drives played a major role in preserving the music learnt in the past. Recording of all the lessons and other information related to music was preserved for future reference.

Music software like Blue Lotus Informatics was created by an Indian Musicologist Gandluri Prasad, a doctor by Profession in Australia who created Beauty of Carnatic music and Raga Nidhi software featuring Music Guru and eminent top-grade vocal artist from India, Sri D. V. Mohana Krishna, Disciple of Padma Vibhushan Dr. Mangalampalli Balamurali Krishna, in the years between 2003 to 2006. This became a very user-friendly, popular Carnatic music software at that time.

In this way, people living abroad were learning Indian Classical Music till this time. But from then onwards, there was a great development that took place in the advancement of technology. Thanks to Science for the satellite technology, which connected every corner of the world in the 21st century. The social media platforms, like email systems, Orkut, and Facebook, have connected people all over the world. YouTube has created history and is still going strong in storing an ample amount of data and delivering information from various fields in the world. Indian Classical Music was also spread all over the world through communication through videos by various music professionals. Many music teachers have taken the opportunity to teach the world through their lessons and helped many students virtually, though not in person.

Applications like Skype, WhatsApp, Zoom, etc, were developed to do live conferences and learning sessions for many students living all over the world. This concept of teaching virtually has helped students living away from India to learn from professional teachers in India through applications like Skype, Zoom,

and WhatsApp. These applications were designed in such a way that students from any part of the world can learn in a virtual classroom mode virtually. Also, they can record the virtual classroom session for future reference. This is a great feature as a Virtual teacher might not always be available whenever the student practices the lesson learnt in class.

Latest Applications used for Music

Traditional Indian Classical Music used the Manual Tanpura, which, later on, with the advancement of technology, was converted to Electronic Tanpura. In today's world, sophisticated apps are used for playing the tanpura with software advancements. For example, An Application by the name 'Tanpura Driod' is an application that plays all the twelve scales, the shift of sruthis from panchamam to madhyam, nishadam. There is an option to set the fine-tune and adjust the tempo, volume, etc. This is a very useful app that can be downloaded from the Play Store for Android users. A similar app is available for iPhone users too.

A description of a few other apps and their importance in today's world.

1. Swar Meter

Swar Meter is an app designed to identify the pitch of the sound. If a soothing sound is heard at a given point, it will be at any one of the twelve scales of Music, which range from A to A#. The Swar meter app can be used to test the frequency of a person's voice or an instrument's sound. This app was developed by Digish Pandya and Komal Pandya.

2. Sadhakam

Indian Classical Music can be mastered if you have swara gnanam, which means identifying the places of swaras. For this exercise of identifying the musical notes, a sounding of musical note is sounded to be heard by the listener to identify the note. In case the listener identifies the right note, he will be given another note to be heard. Like this, an exercise to train the ears to improve the swara gnan is being designed. This is one of the useful apps for students who wish to improve their music skills.

3. Metronome

Thala is a very important aspect of music. Without tala, there is no life in a song. Tala is given utmost importance in Indian Classical Music because there is a saying in Sanskrit which means If Sruthi is the mother, then Laya is the Father. So, the parents of music are Sruthi and Laya. Just like how there is no life for a child without a father, there is no music without laya. Another wonderful advancement in technology is the invention of the Metronome App. Earlier companies like Radel, which manufacture musical instruments, brought electronic instruments related to the thala. But after the improvement in the technology, apps like Metronome came into existence and help the students learn the rhythmic aspects of music properly. As these instruments and Apps are not human, there will be perfect accuracy in calculating the beats and counts, unlike humans, where there is a possibility of making mistakes due to a decrease in the energy levels time to time in a given period of a day.

4. Jalra

Jalra is a complete percussion app that is designed with tanpura, mridangam, and gives a very devotional and spiritual experience when used. Many musicians are using this app in live concerts as it is very artist-friendly.

Once the tala of a composition and the tempo in which the composition is sung or played are set, the artist who plays or sings can perform in the absence of a percussionist, especially a Mridangam player.

5. Carnatic Talam Robot

Carnatic Talam Robot is also another tala app which shows how to put the talam by showing the parts of the talam on a hand robotically designed.

It is very helpful for music learners who want to learn all 35 basic talas of Carnatic music. You can select the Jaathis and Gathi (nadais) of Carnatic Music.

Like this, there are many apps that have been developed in the recent past to connect music and today's advanced technology. These apps are helping to make the technical aspects of music very clear.

Music and Artificial Intelligence

When a new technology comes into existence, there are always advantages and disadvantages. So, we need to be very careful in using the new technology, irrespective of any field. Artificial intelligence is widely used in music production for mixing and mastering the audio files to get the best quality output. There are AI-based technologies like Aiva that help in music production.

Artificial Intelligence provides virtual tutors for music theory education. But for technical education, which needs skill to correct the student, it is difficult to blindly follow the AI virtual tutor, as it may not be able to clear doubts and does not pose questions lively.

Artificial Intelligence helps in generating new musical instrument sounds, composing, and music creation.

With the emergence of AI, existing vocal tracks can be separated from the other instrumental tracks in a song. Also, mimicking one person's voice by another is done through artificial intelligence without human involvement.

There is still some research work going on in developing the field of music with Artificial Intelligence.

Conclusion

With the advancement of technology, humans have taken advantage of many software and tools to learn Indian classical music, though they reside in any corner of the world. However, humans are being replaced by Artificial Intelligence Robots. Humans are humans, and man-made machines are artificial. The conclusion that we can give in this research paper is that learning online from Gurus to carry the legacy of our age-old Indian fine arts culture is good. But it cannot replace the original Guru Mukha System

(Learning Directly from Guru in Live), as we can learn sitting face to face, we do not need to have any technical glitches while learning directly from the Guru.

Artificial Intelligence should limit its development to the extent of safeguarding the career of Music Gurus, though a Virtual AI tutor is not a substitute for a Human Guru. Finally, Man can take the help of Man-made things, but he cannot be completely replaced by Man-made things.

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