On learning Indian Classical Music through ODL

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Abstract:
In the traditional model of Music education Teacher and Taught share a time slice and a physical location at the training Session. This model is good for those who wish to make career in music. Large number of people wants to learn music as a hobby or as an additional skill; An affordable model for such music aspirants have been Synchronous and asynchronous learning, Indian classical music, use of ICT, interdisciplinary research, computational musicology

I. INTRODUCTION

Indian Classical Music (ICM) is traditionally considered to be taught by teacher to student on one-to-one basis and in face-to-face mode for one important reason: It is a performing art that has more to do with practice with a high precision [8]; a teacher (T) demonstrates and a pupil (p) follows. The conventional model for learning ICM (CLICM) has been summarized in the following Figure 1.1.
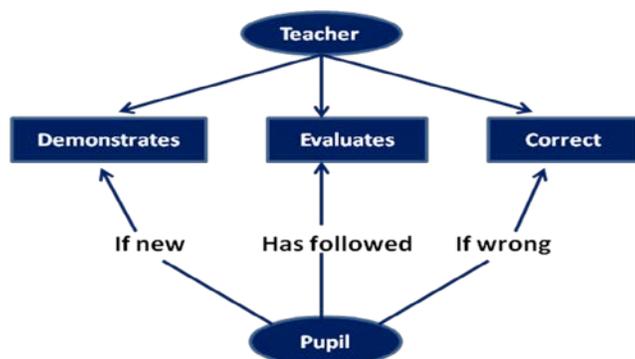

Fig 1.1: The conventional model for learning ICM

While in the case of a beginner *Demonstration* (D) is of how to recite a particular note and its intonation in a musical set up (e.g., accompaniment and audience), it is about improvisation of a piece and to explain subtle differences between the similar articles (e.g., similar ragas) or for bringing aesthetics in the presentation of a raga or genera, if p is senior. *Following* (F) means p try mimicking T. *Evaluation* (E) is a measure of deviation of F from D. E is fed back to both, T and p. An experienced T employs

discussed in this paper. It has been argued that ICT employed for music education can lead to a unique model of experiential learning that could be launched in ODL Institutions.

correcting measures (e.g., correcting incorrect posture of p) to minimize D resulting into a refinement in *learning*.

For the continuous engagement of T and p that CLICM demands, it is expected that p has to learn by sitting physically in front of T. CLICM enforces customized supervised learning in order to keep p on a right track and avoid the cost of unlearning of incorrect practices that are hurdles in making a progress. CLICM has been proved effective provided p spends dedicated years with a resourceful T who can tune to the thought process of p while grooming [10]. Given the scarcity of T getting a right T is a challenge.

Clearly, CLICM is feasible only to those who wish to make full time career in music. However, for several reasons, ranging from meditation to medication, including the requirement of knowing music by the job seekers in the allied areas like sound engineering, the number of aspirants-for-learning-ICM (A) has been increasing. We need to develop a scalable model, catering the need of A.

Geographical distance between A and T and hence the commuting involved in attending tuition, schedule and estimated total time to be devoted to music learning on regular basis, and, sometimes price tag, prohibit A for choosing CLICM. Learning ICM in distance mode (DLICM) is a way out that has been explored in the recent past [19][22][26].

History of open and distance learning (ODL) in India dates back to 1962. There are 97 ODL institutions in India together they offer hundreds of Programmes [3]. In a typical scenario an Institute executes 10-12 hours of personal contact programme for a semester long Course. Learners are largely dependent of printed self-learning material that now a days has been complemented by audio-

visual open education resources [1]. The model has been well received for the Programmes under the faculty of Commerce and Social Sciences. For example, today it serves as many as 10% of the total learners in University of Mumbai. Aimed at providing all round education and self-learning opportunities, MHRD of India has encouraged to develop e-content for the subject Music under e-PG pathshala and Swayam initiatives [17]. Developing a framework for DLICM is a topic of research. In this context, revisiting the state-of-the-art music-aids, investigating their potential for DLICM and suggesting enhancements has been a topic of this paper.

In the following Sections of this paper we first discuss a possibility: learn music in asynchronous mode, i.e., without a stringent requirement of T and p sharing a time slice while teaching takes place. Next we present four cases of music software, namely, Swar Shala, Transcribe, Sing-n-see and a set of miscellaneous tools [27][24][25][20]. There is a range of electronic gadgets serving diverse purposes for a music person. However, we focus on software solutions because they are relatively economical (sometimes free of cost), portable, integrated and with more choices of customizing. In the contemporary world it is most likely that A is already equipped with a handheld smart device and internet connectivity. We believe, A's familiarity regarding the use of such technology saves set-up cost and time that would lead to a faster convergence of the learning curve. A schematic of proposed model DLICM and a few pointers for researching in music-aids have been presented towards the end of the paper.

2. MUSIC IN DISTANCE LEARNING:

It is understood that efficiency in learning music is due to the real-time feedback on the p's performance, and therefore a synchronous communication is expected. However, for the requirement of A one needs to explore possibilities of music education in asynchronous mode.

Much research has been done in recent past on distance education, its comparison with traditional way of teaching-learning, benefits, pedagogies and tools etc., [2][4]. Very little work has been reported on music learning through the distance mode [6] in general and still less is found in the specific context: Indian Classical Music [19][22][26].

[7] is a report on an experiment of teaching piano through a live video session and, by facilitating recorded videos to the distance-learners of rural Zambia. We know that the higher the bandwidth and the lesser the noise, the better is the quality of a synchronous video communication. Interruptions like audio reverberation, video freezing and, dropped calls in the case of a bad line, frustrate a learner. Asynchronous model is not found productive. However, results of a blend of synchronous and asynchronous teaching through videos are encouraging.

Arguably, one may begin a Session in synchronous mode, let A follow demonstrations in asynchronous mode, evaluation can take place asynchronously and correction on-line, i.e., in synchronous mode, should bring the bests of the CLICM to DLICM. This blended learning model has more promises for A as well as for p over the contemporary Indian model of on-line music teaching through a video call or through a video conferencing portal [18][21][23][26]. Enhancement in the model is possible by recommending use of a few affordable, user-friendly tools by the distance learner (L), A or p, while following demonstration. The next Session is on application of software tools to enrich on-line music learning experience.

3. MUSIC SOFTWARE FOR DISTANCE LEARNING

Be it Indian or Western, classical music follows a rigid framework of defined notes [11]. Hitting the exact notes and avoiding the invalid as well as undefined notes, i.e., being tuneful is extremely important for a performer. Attaining tunefulness is a challenge for a beginner while a well-practiced person has to be alert for maintaining it. Apprehension or shyness in seeking guidance repeatedly on one single point or, non-availability of a teacher in real-time mode hampers the learning speed and enthusiasm of L that affects quality of the learning outcome. Techno-assisted learning has a better productivity. Simple gadget, tuner, tells if L is tuneful or not [12]. However, it cannot give a feedback for correction. A higher level assistance is possible in terms of advanced tools . To the best of our knowledge, more software tools are available for learning Western Music [16]. A few available for Indian music are proprietary; hardly any of them is open source. Out of the samples considered here, Indian music software is free for use. Free trials of others are available. All but Transcribe assumes good amount of music knowledge with learners. A User of other software can be a novice or an expert in music.
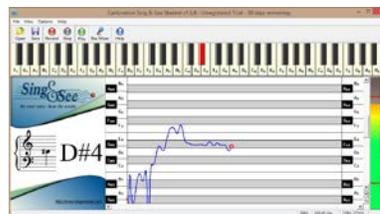
1. Sing-n-see displays a graph of an audio signal from where tunefulness could be computed by looking at the deviation of a sample note from the standard one. The keys corresponding to the audio signals gets highlighted that aids in derivation of notation of the piece.

2.

Swar shala provides two options: Knowledge about the basics of Indian music has been provided through multimedia demos. A can set up a music Session by dragging the instruments from the library and selecting values for their parameters like scale, pitch, cycle, tempo, acceleration and, play it for practice purpose or for trial compositions.

3.

Transcribe is a transcription aid. A can record or select a piece of an audio file, zoom in and see the guesswork regarding the notes and chords played in along the time line from where notations could be derived. A can apply various effects and their combinations that develops insight into composition. A can create a reference track.

4.

Indian music software is a set of tools that cater diverse needs of a music person. Harmonic visualizer displays the details of complex structures, overtones and harmonics of a sound; Desktop tanpura is a simulated tanpura that can be tuned per the requirement by inputting the values for the parameters like speed, pitch etc. Advanced versions are Murchanna tanpura that plays murchannas in a given tuning and, Swara lattice that can play 22 shrutis. Swara player plays given swara or sargam. Layakari metronome aids while practicing a piece in diverse Thekas; Chanda player helps creating musical compositions in diverse meters.

Clearly, this range of software is more than enough to satisfy the basic requirement of having an aid to keep L tuneful. They employed in a systematic manner can facilitate experiential learning [13] in ODL. Our proposal for techo-assisted DLICM has been discussed in the following Section.

5.   DLICM FOR EXPERIENTIAL LEARNING (ELICM)

Experiential learning is, learning through reflection on doing [5]. This essentially has to be the best approach for an effective training in general and L in our context.

Experiencing helps in grasping domain terminology. Repeat experiencing reveals greater details that are crucial to a successful performance, ICM is no exception. However, a right grasp of basic terminology is important for laying strong foundations; engagement of T with L in the repeat experience to grasp basic terminology has a practical difficulty of limited time of T that is to be distributed among L. We need a model that lets the individuals in L feel that T is always with them.

Key element of CLICM is dedicated p, that of DLICM is aspired A. We need simulation of dedicated T in ELICM.

What are the concepts to be learnt by experience? How shall we facilitate those experiences? Let us evaluate the above mentioned software in the light of these questions.

Concept	How to experience
Perfect recitation of a note / notation	Follow a D, record with Sing-n-see, Watch graphical display and adjust the deviation by trial and error. Note your mistakes. Let T provide specification of a musical set-up for L. Create a Session in Swar Shala, Feel the presence of accompanists and perform! You may have the flip classroom [14]. Check how good you are at identifying error in the recorded note.
Properties of sound	Attend Swar shala. Open your Practice Session, change values of parameters, one at a time and then in combination. Study effects. Check how best you differentiate between a given pair of sounds
Derivation of notation	Play a recorded piece in Sing-n-see, while listening it carefully, keep an eye on the piano buttons highlighted. Note the button number. Open the piece in Transcribe, zoom in if required. Record the caption of the green highlighted piano button. Select a set of music pieces. Watch machine generated note sequences by playing it in Sing-n-see or Swar Shaala. Learn note (heard) – notation (scripted) mapping. Generate quiz: Recognize me! Out of a given set of notations, L has to select one that is matching to the played tune. With the help of Transcribe, derive notation of a given piece from a recital.
Practice / Riyaz	Tune MurcChana tanpura as a reference and practice for diverse values of parameters.
Theka	Use Layakari metronome, try your practice notation at different speeds and

	with stresses at diverse points.
meter	Use Chanda player for practicing compositions from diverse meters. Try a single composition in two meters.
Create music	Select a difficult piece, know its notation with the help of Transcribe, tweak it, listen. Try tweaking and noticing the change in appealing value of the music. Learn what sounds good. Compose.
Shruti	Use Swar lattice, know 22 shrutis, practice. Set up games based upon following and identifying shrutis. Can you hear other than the 22 defined notes? How many of the 22 you could differentiate? How many you could present?...

Individuals in L at ELICM learn at own pace and send recordings of practice Sessions to T that would be a feedback for T to plan a suitable tutoring strategy for them. A learning management system [15], a virtual platform for interactive collaborative learning could be deployed. This would help keep track of practice details and performance of the individuals in L. It also facilitates variety of statistics about the stake holders' experiences. ELICM is learner centric. Experience of practicing along with a given reference line, within a musical set up involves skilled personnel and hence is a costly affair in CLICM. Such facilities are availed occasionally. Conversely, L in ELICM without any experience can copy the parameter values from T's inputs and set up a Session easily. The recurrent cost is only of internet connection, i.e., too less compared to the honorarium of the accompanists.

Learning environment facilitates both, qualitative and quantitative, set up. L may choose to learn in qualitative environment and by heart quantitative data that could be copied in the forthcoming Sessions in order to maintain uniformity (or informed modifications) in the musical set up throughout the practice sessions and the performances.

Text based interfaces and intelligent interpreters of the Session happenings could be built-up. There is a scope for modeling a few more dimensions of a performance, for example, projection of sound. Computer scientists and music stalwart together can write novel education-aids. Developing tutoring tools and tools for helping experimental research in creating new music is a specialty area of research in computing with a high commercial value.

6. CONCLUSION

In this paper we discussed limitations of conventional model for music education; also demand for the music education through ODL Institutions has been mentioned. A blended model of synchronous and asynchronous learning has been discussed. The paper concludes with a unique proposal of experiential learning in distance mode music programmes. Advantages and opportunities in the implementation of the same are highlighted. Discussion in this paper should inspire the decision makers to offer Indian music in Distance mode and spread it as much as possible.

7. REFERENCES

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