International Journal in Management and Social Science
Volume 09 Issue 11, November 2021 ISSN: 2321-1784 Impact Factor: 7.088
Journal Homepage: http://ijmr.net.in, Email: irjmss@gmail.com
Double-Blind Peer Reviewed Refereed Open Access International Journal

WESTERN VOCAL TECHNIQUES CAN IMPROVE THE SINGING FREQUENCY RANGE OF CARNATIC MUSICIANS

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ABSTRACT

Singers are naturally curious in the science behind their voices. Although books may teach you about the anatomy and physiology of the larynx, they won't provide you the singer's viewpoint on how the larynx works when it comes to creating musical sound. The phrase "Western vocal technique" encompasses a wide range of singing practices since they have evolved through time from the ideas and approaches of many different vocal pedagogues, instructors, singers, voice specialists, and other professionals. In essence, however, four distinct national singing traditions exist. The schools represent the Italian, German, French, and English languages. When it comes to vocal skills like breathing, vowel production, resonance, laryngeal placement, vocal registration, etc., each school has its unique approach and tactics. This research includes both students from Governmental and Assisted Institutions. In this discussion, "music students" will refer to people who have taken it upon themselves to enroll in a university's music degree program at either the undergraduate or graduate level. It was decided to take a sample of 30 people, split evenly between the two colleges (Government College for Women, Vazhuthacaud and National Service Scheme College for Women, Neeramankara).

KEYWORDSWestern Vocal Techniques,voices, Singing, Carnatic Music

INTRODUCTION

As compared to other instruments, the human voice is really one of a kind. The tone, timbre, resonance, etc. of each singer's voice is unique. Singers have it in them from the start, whereas instrumentalists may go out and purchase anything they choose. No other instrument can replace a singer's natural one. Each person has a distinct voice, and there are several techniques for improving one's vocal performance. Singers are always interested in learning more about the science behind their instrument. Although books can teach you about the anatomy and physiology of the larynx, they won't provide you the singer's unique viewpoint on how the larynx contributes to the creation of musical sound. A singer's performance would unquestionably benefit from a deeper familiarity with their own instrument, as well as knowledge of the nuances of voice production and the many resonators. Western classical music also flourished and evolved throughout this time. Western classical music reached new heights thanks to the emergence of three musical giants: Bach, Haydn, and Beethoven. Perhaps more so than Mozart and Beethoven, Wagner expanded the canon of western classical music.

Together with his brothers Chinn swami and Bal swami, he had a close circle of pupils who became known as the Tanjavur Quartet. They helped spread the word about his kritis and the violin in general. Certain "Nottuswaras" that Dikshitar composed employed Western melodies in addition to traditional Hindustani ragas. Dikshitar was a traditionalist when it came to his music, but he and his family were open to exploring new sounds and perspectives. SubbaramaDikshitar, the grandson of his brother, collected and published "SangitaSampradayaPradarsini" in 1904, creating a bridge between ancient and modern ragas. Songs that were made famous by the family and shishyaparampara are still going strong in the modern day.

LITERATURE REVIEW

Radhika Mohan et.al (2020) A professional voice user is someone whose ability to communicate effectively via speech is crucial to the success of their job. It may be harmful to their jobs and their reputations if these experts' voices are compromised. Thullal folk fore artists are among those who utilize their voices professionally. The top voice users who practice the Thullal art form for extended periods of time run the danger of developing vocal disorder. The current investigation was thus initiated in this setting.

Thirteen amateur Thullal performers had their voices sampled for acoustic analysis using PRAAT software, version 5.1.37. Several acoustic features of the human voice were discovered as a consequence of this investigation. This confirms the results of a 2003 research by William that found PVUs to have a higher prevalence of vocal abnormalities. The research highlights the need to educate world-class vocalists about the prevalence of voice diseases and the resources available to them to preserve their singing voices. It also provided a comprehensive overview of the vocal traits of Thullal performers, which could improve therapy and counseling services.

Rupert Avis et.al (2019) In this article, we take a closer look at the bi-musical education program at KM Music Conservatory from both the perspectives of students and faculty (KM). In 2008, the Oscar-winning film composer A. R. Rahman founded KM, an educational school in Chennai, India. Several programs are available at the Conservatory, including a Diploma program that is accredited by Middlesex University in the UK and counts toward a Bachelor of Music degree that is well recognized across the world. In what has been called a "bi-musical" curriculum, students in the diploma program study both Western art music and Hindustani classical music in addition to audio engineering. Teachers' and students' reflections on the KM curriculum show that a focus on two musical traditions might reinforce colonial, Orientalist, and neoliberal ideologies. In spite of this, I believe that bi-musical education has the potential to destabilize colonial ideology, Orientalism, and neoliberalism by bringing into conversation a wide variety of concerns if the creation of these discourses is recognized.

Kyungyun Lee (2018) Singing voice identification has been a hotspot in music data retrieval due to the centrality of the vocal component in today's most successful musical genres. We claim that there is still opportunity to improve upon existing methods in order to construct a more robust singing voice identification system, despite the fact that numerous proposed algorithms have showed good performances. First, we conduct an error analysis of three state-of-the-art singing

voice identification systems to pinpoint the most pressing areas for development. This study informs the development of unique ways for testing the systems on a variety of internally selected and created data, allowing us to dig deeper into the issues that aren't readily apparent using existing datasets. Based on our experimental findings, we also provide numerous recommendations for improving singing voice detectors.

Gunjawate (2017)developed a battery of acoustic, auditory perceptual, self-reported, and aerodynamic measurements to assess the singing voices of Indian classical musicians. Many aspects of Indian classical singers' voices are described, and the need of task-based voice assessment tailored to musicians is emphasized in this outstanding piece of work.

WESTERN VOCAL TECHNIQUES

The phrase "Western vocal technique" covers a wide range of singing practices since they have evolved through time from the ideas and techniques of many different vocal pedagogues, instructors, singers, voice specialists, and others. There are essentially four distinct national singing academies. You may choose from schools in Italy, Germany, France, or the United Kingdom. Breathing, vowel creation, resonance, laryngeal placement, vocal registration, etc. are all handled differently depending on the school. Both the old and the new schools have adopted and adapted many of the tactics and procedures used by the other. A lot of famous vocalists came from a variety of educational backgrounds. Several singers have not limited themselves to one singing tradition but rather have explored and incorporated elements from a variety of traditions into their own work. Miller (1996) claims that several researchers have studied singing and famous singers. On the other hand, no universal singing style or technique was discovered. This may explain the emergence of several musical traditions, since each school embraced a unique set of aesthetic priorities.

RESEARCH METHODOLOGY

Research Approach

The first step in conducting a research inquiry is deciding on an appropriate research strategy. What kind of data has to be gathered, and how it will be analyzed, are both outlined in a study methodology. It also hints to potential inferences that may be made. For this reason, a quantitative evaluative research strategy was suggested to assess the efficacy of some Western vocal methods on carnatic musicians, given the specific nature of the issue and the goals to be achieved by the study.

Research Design

Definition of Research Design: The blueprint for a study. It guides the researcher in making decisions on which people to study, which variables to manipulate and how to control them, what data to collect, and what kind of statistical analysis to use. The comprehensive strategy for answering a research topic; it should include guidelines for maintaining the reliability of the research.

Table 1 Schematic Representation of Research Design

Day – 1 Pre-test	Day -2 Manipulation after Pre – test	After one month Post-test- 1	After two months Post-test- 2	After three months Post-test- 3
O_1	X	O_2	O_3	O_4

Key:

Oi - Assessment of demographic data and pre-test scores of MPD, singing pitch range and SVHI - 10 X - Training of Western vocal exercises an hour each, twice a week for one month.

02- Assessment of post-test scores of MPD and singing pitch range after one month.

03- Assessment of post-test scores of MPD and singing pitch after two months.

04- Assessment of post-test scores of MPD, singing pitch range and SVHI - 10 after three months.

Sample

Those individuals who are randomly chosen from a larger population to take part in a study are known as a "sample," as defined by Polit and Hungler (1999). It's a sample that stands in for the whole population. Participants in this research are people who are taking official lessons in carnatic music.

Sample Size: Thirty participants pursuing degrees in carnatic music at the bachelor's and master's levels are represented in this analysis.

DATA COLLECTION

The vocalists who met the requirements were given a "participant information sheet" written in English. It detailed the nature of the research and the necessary nature of one's involvement. Those who agreed to take part in the research were asked to sign a permission form. Each person underwent the full process on their own. Questions were asked of everyone who took part in order to find out things like how old they were, how long they'd been in college, how many years they'd been studying carnatic music, and whether they'd had any issues with their singing voice.

DATA ANALYSIS

Many people attribute their achievements to pure chance. Yet good fortune is no defense. Anybody can get what they want out of life, provided they take the time to plan out their path and put in constant effort. To begin, one must have objectives. If you have a clear goal in mind,

working toward it becomes less of a struggle. Working hard and keeping at it will undeniably pay off. Even in the realm of music, this is true. One's level of professionalism as a musician rises in proportion to the amount of time and effort spent honing one's craft. As a result, one should expect to reap benefits proportional to the amount of effort put into expanding one's musical knowledge and skill. Similarly, musical expertise and training may be reduced to a set of numerical relations, and the resulting growth and development can be examined quantitatively.

These results involve pupils from two different types of educational institutions (one government and one aided). By "music students," we mean those individuals who, after completing secondary school, have enrolled in a university's music degree program at either the undergraduate or graduate level. Thirty participants were selected at random from the female student bodies at both Govt. College for Women, Vazhuthacaud and NSS College for Women, Neeramankara. The data was analyzed using a variety of statistical methods. Percentage Analysis, Analysis of Variance (including Post hoc analysis using Tukey's simultaneous comparison or Scheffe's technique), One Sample t Test, and Paired Sample t Test.

Details of the analysis done are explained below.

Table 2Profile of the Respondents

erosstab	**Variables**		**Percentage**
Age group of Students	18-19 Years	10	33.3
	19-20 Years	13	33.3
	>20 Years	7	23.3
	Total	30	100.0
Educational Status	I Year BA	6	20.0
	II Year BA	6	20.0
	III Year BA	6	20.0
	I Year MA	6	20.0
	II Year MA	6	20.0
	Total	30	100.0
Category of College	Govt. College for Women	15	50.0

	NSS College for Women	15	50.0
	Total	30	100.00

Source: Compiled from primary data

Respondents are undergraduate and graduate female music students from Govt. College for Women and NSS College for Women, respectively, who have chosen to focus on carnatic voice. There were 30 individuals in total for the sample. Additionally, the accompanying chart shows that six (6) music students from each of the first two years of the BA and the MA were taken into account. When broken down by age, the largest single group was those aged 18 to 19 (33.30% of the total), which contained 10 students. Students aged 19–20 made up 33.33 percent of the total, while those aged 21–24 made up 23.30 percent.

Figure 1 displays the student population by age.

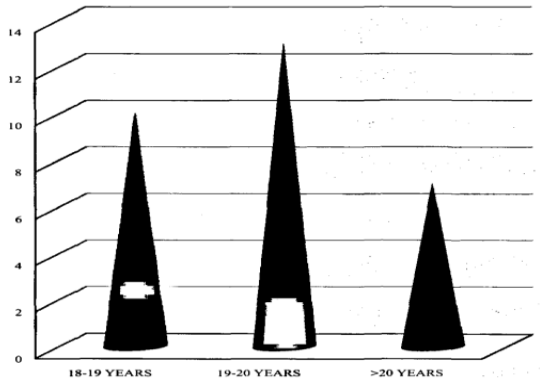

Figure 1 Age wise distribution of the music students

Several studies have indicated that exposing kids to music for an extended length of time improves their topic knowledge and ability levels. Given that the respondents were themselves music majors, it is only natural to inquire as to how much time they devoted to music study outside of the typical college curriculum. Learners' average time spent on various methods of study is shown in Table 3.

Table 3Tenure of Carnatic learning and Western practice

Age group		N	Mean	StdDeviation	Min.	Max.
Years of Learning	18-19 Years	10	8	3.3222	2	13

Carnatic music	19-20 Years	13	9.692	5.2502	3	17
	>20 Years	7	7.286	3.1115	5	16
	Total	30	8.567	3.6953	2	17
Western Practice/ week	18-19 Years	10	3.6	2.706	1	*7*
	19-20 Years	13	3.115	1.7097	1	7
	>20 Years	7	0.857	0.378	0.5	1.5
	Total	30	3.083	2.3355	0.5	7

Source: Compiled from primary data

The time spent studying carnatic music was calculated per age category. As a result, 18- to 19-year-old music students often choose a time frame of 8 years3.32 as their preferred option. Music majors often commit to their studies for a least of two years and a maximum of thirteen. As also, among those studying music between the ages of 19 and 20, the median time frame given is 9.69 years 5.25. Students in the field of music have set aside a time frame of no less than three years and no more than seventeen. Similarly, among those above the age of 20, the median time frame stated by music students is 7.28 years3.11. In addition, the time allotted by music majors ranges from a minimum of five years to a maximum of sixteen.

The weekly amounts of time spent practicing Western music by pupils of different ages has also been calculated.

As a result, music students between the ages of 18 and 19 spend an average of 3.60 2.70 hours a week practicing their craft. The weekly practice time for music students varies from a low of one hour to a high of seven. Comparatively, college-level music majors devote 3.11 1.70 hours each week on average. Students in music programs often put in anything from seven hours per week to a minimum of one. Similarly, music students aged 20 and above only devote an average of 0.857 h/w 0.37 each week to their studies. Music students may spend as little as half an hour each week practicing, and as much as an hour and a half.

It is now crucial to analyze the statistical importance of the time students spend outside of traditional college hours studying music. ANOVA was used to check for statistically significant deviations. Tabulated particulars are available in table 4.

Table 4ANOVA test on tenure of Carnatic learning and Western practice

Category		Sum of Squares	df	Mean Square	F	Sig.
Years of Learning	Between Groups	31.169	2	15.583	.692	.509
	Within Groups	608.198	27	22.526	Result	
	Total	639.367	29		Not Significant	
Practice/ week	Between roups Groups	57.708	2	28.853	7.650	.002
	Within Groups	101.833	27	3.772	Result	
	Total	159.532	29		Significant	

Source: Compiled from primary data

The Anova test was used to do a statistical comparison of the time spent studying carnatic music across different age groups. As a consequence, the result was not statistically significant (Anova test value = 0.692, p value = 0.509, P>5°/0). This indicates that there is no difference in the subjective judgment of the average amount of time given by music students of various ages. What this indicates is that the time period during which students study carnatic music remains constant, even while the age range of those pupils changes.

Music students' weekly hours spent practicing Western music have also been statistically analyzed by age group using the Anova test. The significance level for the Anova test was therefore determined to be 7.650 (P5%). This suggests that there is a difference in the weekly allotted time for practicing western music among students of various ages. It indicates that the amount of time that students spend each week practicing western music does vary, and not only because of the age range. The amount of time each group devoted to learning and practicing western music varied.

It is important to investigate the relevance of the Anova test's finding that there is a significant age-related difference in the number of hours per week that music students perform western music. Thus, one of the most crucial Post Hoc tests, Tukey's HSD, was carried out to pinpoint the areas of greatest variation and identify the groups that were able to devote more time to rehearsal. In table 5 we see the results of the analysis.

Table 5Tukey HSD Test on Western music practice/week

Dependent Variable	(I) Age Group	(J) Age Group	Mean Difference (I-J)	Std. Error	Sig.
Western Practice/ week	18-19 Years	19-20 Years	1.3836	0.8169	0.183
		>20 Years	3.7329*	0.9571	0.002*
	19-20 Years	18-19 Years	-1.3836	0.8169	0.183
		>20 Years	2.2582*	0.9105	0.05*

*. The mean difference is significant at the 0.05 level. Source: Compiled from primary data

Tukey's honestly sloppy test (HSD) was used to compare music students' weekly hours of western music practice. When comparing those aged 18–19 to those aged 20–24, the difference in mean hours worked per week is plain to see: 3.6 vs 0.857, or a p value of 0.002 (P5%). In a similar vein, when comparing those aged 19–20 to those aged >20, the p value is 0.05 (P5%) in favor of the former group due to their greater average (3,11 Hours>0.857 Hours). When compared to students aged 18–19 and 19–20, however, no statistically significant differences were discovered. As a result, it's very evident that younger music students (20 and under) spent more hours each week practicing western music.

In the tables below, we can see how much time different age groups of music students spend practicing each week.

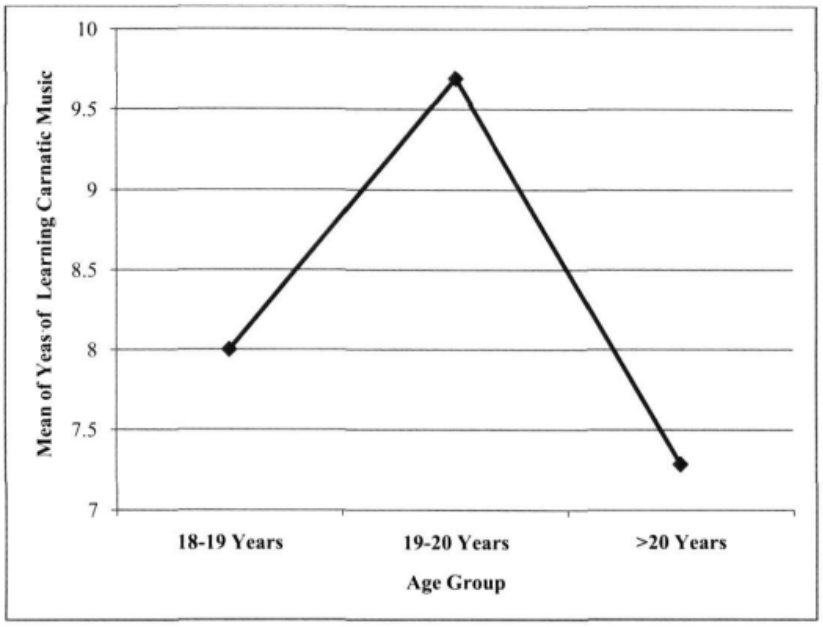

Figure 2Average learning period of Carnatic music

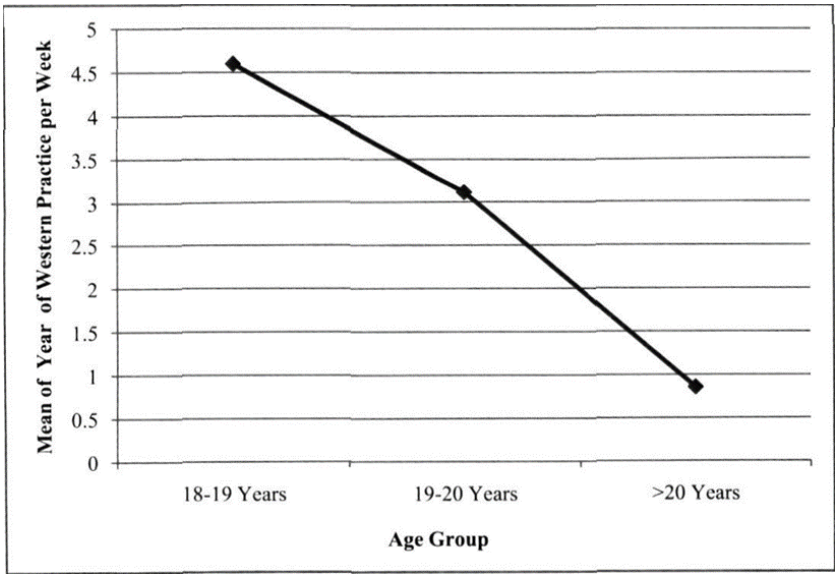

Figure 3Average practice time for Western music

The pitch of a sound is its relative loudness or quietness. The frequency of a sound is set by the vibrating of the vocal chords. A higher pitch is generated when the vocal chords vibrate quicker, while a lower pitch is produced when they vibrate more slowly. Every individual has a unique vocal range. Low pitch skill among music students was compared using the current study. Through the experiment, we were able to glean the necessary data for the analysis. Before beginning their Western voice instruction, 30 students in this study took a pre-test. After

receiving Western vocal instruction, students' post-test scores were determined every month for up to three months depending on their low pitch abilities throughout the trial. This particular pitch was numbered as such. There was a negative one assigned to mandrasthayinishadam, a negative two to mandrasthayidhaivatham, a negative three to mandrasthayipanchamam, a negative four to mandrasthayimadhyamam, and so on.

CONCLUSION

Human speech is the oldest and most adaptable musical instrument. In addition to its importance to vocalists, the human voice is fundamental to everyone's daily existence since it is the main method of human communication. There should be some consideration paid to whether or not good voice care is given the significance it deserves. Writing and research by scientists like Manuel Garcia, Richard Miller, James McKinney, and Ingo Titze have greatly advanced our understanding of the human voice. Their research and writings set a high standard. Scholars of international renown have studied the cultural significance of the human voice, including Indians such as SAK Durga, T V Gopalakrishnan, and PrakashBoominathan. This fact alone indicates that the voice has to be attended to with more attention. So, those who often use their voices in India should be made aware of the need of vocal cleanliness and proper maintenance. There were three criteria used to determine how beneficial certain western workouts were in this research. Before beginning instruction in western methods, the pupils' singing voices were evaluated for range, maximum phonation length, and singing voice handicap index-10. The good news is that one may enhance their singing by learning more about voice and voice production and using some standard western vocal practices.

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