

# A Virtual Classroom to teach Hindustani Music

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## Abstract

The East Indian Music Academy's Elementary Hindi course is designed to teach students the fundamental terminology used in classical Indian music. In addition, students learn how to pronounce music notes and sing Hindi songs. To determine the effectiveness of an online Elementary Hindi course, a small research project was devised and conducted. Eighteen students participated in this study for two weeks. Nine students took the course online and nine students took the course offline. Every student took a written test before starting the course. All students took four written exams during the course to determine their mastery of the theoretical material. Students were required to learn to sing any two of five classical Indian songs in Hindi. The instructor tested the students' practical knowledge by having all students sing the songs to him either in person or over the telephone. The results indicated that online students outperformed offline students on both the written and oral test measures, but there were shortcomings in the methodology.

**Keywords:** Virtual Classroom, Virtual Teaching, Distance Learning, Multimedia

## 1. INTRODUCTION

The East India Music Academy (EIMA) is a non-profit organization formed in 1995 as a vehicle for propagating the Hindu faith and culture through the medium of music. Their aim is "to expose the children of our community to their rich cultural heritage and to instill in them a sense of pride and an appreciation of our moral and ethical values." ([www.eima.org/orgprofile.htm](http://www.eima.org/orgprofile.htm), 2000, p.1). They offer day and evening courses which were previously conducted in a traditional instructor led classroom environment. The curriculum entails intensive training in singing classical Indian music, plus learning to play the harmonium, sitar, or tabla. Concert performances offer the students the opportunity to demonstrate their mastery of the subject matter.

EIMA felt that they would be able to reach a greater number of potential students, as well as augment

the learning experience of the ones they currently had. Basically, they wanted to take advantage of the benefits commonly associated with distance learning which are learning at an individual pace and time, student control over learning, privacy in learning, access to feedback outside the classroom, online self-testing and self-help. (Belanger and Jordan 2000; Harrel, Jr. 1999). The efficacy of having students use interactive software and programs at their own pace has been demonstrated in the literature. (Fox 1996). The University of Missouri's Center for Independent Study attributes its success in recruiting and retaining students to the implementation of effective offline and online learning systems. (Andrews & Strain 1985).

With this in mind, EIMA agreed to the creation and evaluation of a web presence and a virtual classroom for the delivery of their course material to teach the fundamentals of classical Indian music.

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## 2. BACKGROUND

A Virtual Classroom environment should provide the same classroom-like interaction as traditional classroom environments but without physical locations or physical boundaries. Access to course material can come from any corner of the world by way of the Internet and learning can take place asynchronously (at the time and place of the learner's own choosing) or synchronously (at specified times usually with the instructor and other learners). A full blown Virtual Classroom would provide an environment where lectures and group discussions can take place, where communication between student and teacher and student and student can occur, where assignments and tests can be administered, collected and graded, where teams can form for collaboration, and where diagrams or text or audible material can be iteratively modified by students and teacher during the learning process. (Hiltz 1994, p.6). In truth, there are many media mixes of Virtual Classroom environments. These include Face-to-Face plus a Virtual Classroom, a Virtual Classroom only, and Multi-media. Face-to-Face plus a Virtual Classroom means that a traditional classroom is being complemented with material in an online course. A Virtual Classroom is complemented with textbooks. All of these can be supplemented with on- or offline computer based training or computer assisted instruction learning modules. (Belanger and Jordan 2000; Rada 1997).

There are numerous online courses hosted using WebCT, Black Board Course Info and many other online systems. However, there are few courses that provide theoretical and practical music education online. Understanding Music, an Interactive Music School, ([www.understandingmusic.com](http://www.understandingmusic.com)) and Vision Music ([www.visionmusic.com](http://www.visionmusic.com)) are two online systems that offer music education. Understanding Music posts lesson plans online, uses e-mail to receive assignments, and a bulletin board for discussions. Vision Music provides professional guitar lessons by displaying images of the chords and then playing it in midi format. These systems fall short on the level of student interactivity provided and on measurement of the students' mastery of the subject matter.

EIMA decided on a simple virtual classroom which provided online access to their course material, opportunities for practicing the material, testing of the material, and communication with the instructor. This could then be compared to their traditional classroom delivery. While the courses mentioned previously could act as models for EIMA, EIMA's curriculum has the added challenge of using script and fonts that are different from English script and fonts. The developer of online material for this course must take these considerations into the design. Ample opportunity for interactivity with the online material was also designed into the implementation of the virtual classroom. In

keeping with findings by Hiltz 1994, that the efficacy of the virtual environment increases only with significant communication between teacher and student, EIMA further facilitated interaction of its remote students with the instructor by providing email access as well as by encouraging communication by phone. Another factor for success noted by Hiltz 1994, is the adherence to deadlines. This was encouraged by making deadlines clear and requiring timely submissions of assignments and weekly quizzes. To test the efficacy of delivery of this curriculum via the virtual classroom versus the traditional method, tests were designed to measure the students' mastery of the subject matter.

## 3. COURSE DELIVERY METHOD

The course was delivered using Black Board CourseInfo @. Students logged onto the courses by typing their usernames and passwords at the home page. The course menus are located on the left hand side of the page. A series of course announcements are automatically displayed when a user signs on. The menu options on the left include Course information, Staff information, Course documents, Assignments, Communications, External links, Student tools, and a search feature.

The Course information section contained a brief overview of the course and its objectives. The Staff information describes the instructor's qualifications and how he might be reached. The Course documents has copies of handouts that might be used during the class. The Assignments section contained the homework, quizzes, and exams that students completed.

## 4. COURSE CONTENT

Many images were used within the online course because Hindi fonts are different from English fonts. Even if a document is typed in Hindi the user will see scrambled characters unless they have Hindi fonts installed on their computer. The overwhelming majority of students do not have programs to read Hindi text. Therefore, Hindi text were scanned, saved as images, and uploaded into the course. The Elementary Hindi course used music notes that are linked to Real Audio files. Students read the music notes and attempt to play them on their instrument at home. The students listened to the correct sound of a music note by playing the Real Audio files. Large images containing the notes of a song were broken into smaller images each containing only one line of the song. Then each line was linked to a Real Audio file.

The course was presented in a logical sequence. Students were required to learn the definitions first and then attempted to read notes and sing a song. The online course provided plenty of opportunity for interaction and students have a lot of control over the

course. In addition, the course used a variety of testing methods, online and offline, including true or false, fill in the blank, and multiple-choice quizzes or exams. Students in the online treatment may complete the course anytime of the day and from anywhere. None of the students, regardless of treatment, could change the deadlines for completing homework assignments or exams.

Exams and quizzes were to be graded automatically by the online course management system. However, the course had a technical problem and none of the 4 online grades were placed into the online grade book automatically as it should have been. To resolve this problem, students were sent a copy of the exams via e-mail and they returned the answers via e-mail.

### 5. RESULTS

Table 1 shows the age and test scores for each student in the on- and offline courses with the averages

and standard deviations. Table 2 shows the associated p-values. The average age of the offline students was 10 compared to 19 which was significant at  $p=.009$ . (See Figure 1). Pre-test scores, for the online students, were significantly higher than those for the offline students, 72% compared to 43%. This was significant at  $p=.005$ . The improvement over the quizzes was therefore less marked for on-line students compared to off-line students and, in fact, slowed. (See Figure 2, below). Average scores for the four quizzes for offline students were 64, 64, 70 and 72, respectively. The scores for on-line students were 89, 83, 80 and 80, respectively. The p-values in Table 2 indicate that only the offline students showed significant improvements in quiz scores over the pre-tests. Scores on quizzes 1 and 2 were significantly higher for online students compared to offline students at  $p=.009$  and  $p=.012$ , respectively. There was no significant difference in scores for quizzes 3 and 4. Their respective p-values were .185 and .236.

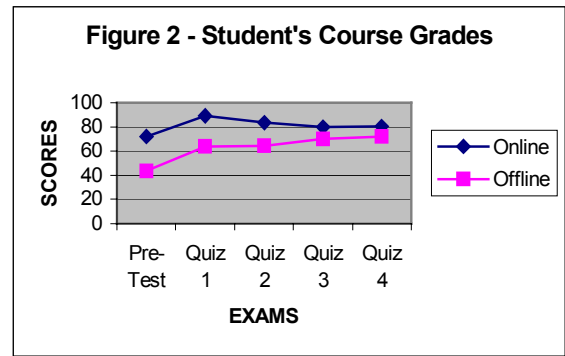
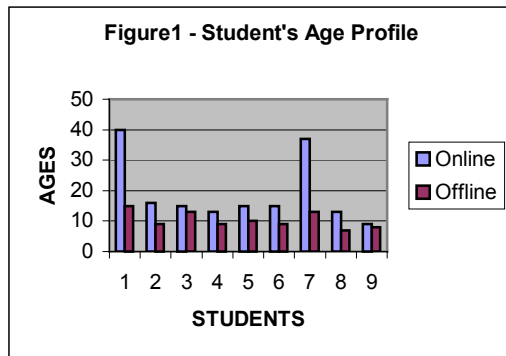
Student	Age	Pre-Test	Quiz 1	Quiz 2	Quiz 3	Quiz 4
1	15	60	75	90	100	75
2	9	10	50	50	80	100
3	13	40	75	40	80	100
4	9	50	75	60	100	75
5	10	50	25	70	40	50
6	9	40	75	60	50	50
7	13	50	75	70	100	100
8	7	50	75	80	20	50
9	8	40	50	60	60	50
Average	10.33	43.33	63.89	64.44	70.00	72.22
Std.Dev.	2.69	14.14	18.16	15.09	29.15	23.20

Student	Age	Pre-Test	Quiz 1	Quiz 2	Quiz 3	Quiz 4
11	40	100	100	90	100	75
12	16	30	100	70	100	75
13	15	80	75	90	80	75
14	13	100	100	90	60	75
15	15	60	100	100	100	100
16	15	100	100	90	100	100
17	37	30	75	90	100	75
18	13	60	75	60	40	100
19	9	90	75	70	40	50
Average	19.22	72.22	88.89	83.33	80.00	80.58
Std.Dev.	11.14	28.63	13.18	13.23	26.46	16.67

TABLE 2 - P-VALUES					
Online vs. Offline Scores					
Age	Pre-test	Quiz 1	Quiz 2	Quiz 3	Quiz 4
.009	.005	.009	.012	.185	.236
Pre-test vs. Quizzes					
		Pre vs. Q1	Pre vs. Q2	Pre vs. Q3	Pre vs. Q4
	Offline	.007	.000	.018	.012
	Online	.059	.138	.304	.244

Although three online students got 100 on the pre-test, this did not necessarily translate to perfect scores over the four quizzes. In fact, Subject 14's scores dropped with each successive quiz, to 100, 90, 60, 75, respectively. Subject 11 did not fare much better with scores of 100, 90, 100, 75, respectively. Nonetheless, as

Figure 2, below, illustrates, online students outperformed offline students in every written test. In addition, the instructor reported that online students more accurately pronounced the notes while singing classical Indian songs



## 6. CONCLUSIONS

The online students performed better on the theoretical and practical parts of the course for several reasons. First, online students were significantly older than the offline students, on average by nine years. Therefore, they may be able to absorb the material faster than younger students. Second, online students scored 30 points higher than offline students in the pre-test. Therefore, online students may already have had a good understanding of the fundamental terminology used in classical Indian music. The fact that this performance was not sustained over the four quizzes, except by one student, may indicate that the results were simply random guessing. Third, online students had tremendous amounts of multimedia course materials available to them 24 hours a day. The online materials included recording of every note and song by the instructor. The offline students only had a few hours of instruction per week. Clearly, online students could spend more time learning definitions and practicing to accurately pronounce the notes.

It would seem that there are too many variables in this study. For example, age differences, computer experience, and initial knowledge of the material varied tremendously from student to student. Also, subjects could not be randomly assigned to the two treatments as some student did not have the technology to accommodate learning the course in this manner. It is difficult, therefore, to accurately conclude that an online Elementary Hindi music course is indeed superior to a traditional class. To create a more accurate study, the significantly older students, and the students who scored extremely high on the pre-test, should have been eliminated. A larger sample size would have permitted this. We also noted previously the difficulty in collecting the quizzes online due to a problem with the technology. Nonetheless, the outcome of this current research is encouraging and future courses and studies will address these shortcomings.

## 7. ACKNOWLEDGEMENTS

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