

## **The Effect of Hindustani Classical Instrumental Music Santoor in improving writing skills of students with Learning Disability.**

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**ABSTRACT :** Learning disabilities (LD) are neurologically-based processing problems that can interfere in learning basic skills of reading, writing, or math. They can also interfere with higher level skills such as organization, time planning, and abstract reasoning. Hindustani Classical music or Indian classical music refers to the art music of the Indian subcontinent. The origin of Indian classical music can be found in the Vedas, which are the oldest scriptures of the Hindu tradition. The Santoor is an ancient string musical instrument native to Jammu and Kashmir. The two significant elements of classical instrumental music is rhythm and melody. The harmony in the notes and the soft melody played can change the very chemistry of our system. This study was conducted to find out the efficacy of Hindustani classical instrumental music santoor in improving writing skills. The study was conducted on four students diagnosed with learning disability and in the age group of 10 years. The research methodology was an experimental design, where in one group was exposed to Hindustani classical instrumental music santoor and the other group was not exposed to any music. The study revealed statistical significant difference in the results obtained among children who were exposed to Santoor music.

**KEY WORDS:** Learning Disability, Classical Music, Santoor

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### **I. INTRODUCTION**

Music has frequently been used as a therapeutic agent from ancient times; historical sources verify the very existence and effectiveness of the combination of music and medicine to cure certain diseases and disorders (Sharma, M. 2007). Music is an art, defined by classical music which got recognised around 11<sup>th</sup> century and gained popularity due to the systematic notation system that it began using. The music is dominant mood enhancer. Thus, most often people listen music from early in the morning till late night. Indian Classical Music is the soul of every music . Classical Music greatly affects the brain activity; it has a positive effect on the hormone system that's why people feel relaxed after hearing the classical music. India has strong historical background of music. Archaeological studies and evidence too has validated the presence of music from the ancient time. The *Samaveda* includes hymns and describes the Indian music. While discussing about the Indian Classical Music, the striking word comes *Raga*. It is the very heart of Hindustani Classical Music (Nawasalkar & Butey, 2012).The child with learning disability inspite of average intelligence is not able to cope up with academic tasks in the school. In all other areas this child is just like any other normal average child. About 10 per cent children are identified in Indian schools with learning disabilities. Learning Disabilities (LD) arise from neurological differences in brain structure and function and affect a person's ability to receive, store, process, retrieve or communicate information. While the specific nature of these brain-based disorders is still not well understood, considerable progress has been made in mapping some of the characteristic difficulties of LD to specific brain regions and structures. Despite the reality that many millions of individuals face the challenges of learning disabilities every day, there remains widespread confusion and misinformation about the nature and impact of LD. Lack of accurate information about LD increases the risk of stigmatization as well as the possibility of lowered expectations and missed opportunities in school, the workplace and the community. (Cortiella & Horowitz, 2014)

### **II. SIGNIFICANCE OF THE STUDY**

Music can affect us in many different ways. Music can cause arousal or it can lower arousal depending on the type of music we listen to. Several students listen to music while studying. Music can affect our moods as well as our ability to concentrate depends on how often we listen to music and the type of personality we have, according to some of the research. Previous research has shown that background music has an effect on certain physiological and biochemical

pathways in pupils with special educational needs and emotional and behavioural difficulties. Further researchers have conducted studies to prove the beneficial of music whether it is western or classical instrument music in academic achievements of students with learning disability. Legutko, R.S and Trissler, T.T (2012) conducted a study to determine whether or not background music had a positive effect on writing performance of students with learning disabilities. The researchers concluded that the writing performance of students studying in 6<sup>th</sup> grade with learning disabilities improved because of the background music played. There are no sufficient research with Hindustani Classical music Santoor on improving writing skills among students with learning, hence the researchers thought to undertake this study.

### **STATEMENT OF THE PROBLEM**

To study the effectiveness of Hindustani classical music santoor in improving writing skills among students with learning disability

### **III. REVIEW OF LITERATURE**

Bottari (1982) determined if the retention capacities of learning disabled children with strong visual-spatial skills and weak verbal skills would be improved if verbal material was presented within a musical context. It also sought to determine if children with the reverse pattern of abilities would retain less verbal information if it was presented in a context of music. Twelve verbally oriented and 12 visual-spatially oriented learning disabled children between the ages of 9 and 11 matched on IQ, sex, race, and age participated. Subjects listened in a counter-balanced fashion to: (a) lyrics sung with instrumental musical accompaniment; (b) lyrics sung without instrumental accompaniment; (c) lyrics spoken with instrumental musical accompaniment; and (d) lyrics spoken without musical accompaniment. Subjects in the visual-spatial group obtained significantly higher recognition scores when the lyrics were sung than when they were spoken whether instrumental musical accompaniment was or was not present. Scores of the verbally oriented group did not differ across conditions. DeMers, Ann S., (1996) investigated the effect of background music on reading comprehension. Would the playing of background music positively affect the scores on a reading comprehension test? A statistical analysis of pre test scores from the Degree of Reading Power test revealed that both classes were of equal reading ability at the onset of the study. The experimental classroom listened to Mozart's Concerto No. 21, C Major, K. 467 for several weeks prior to the study being conducted, during Sustained Silent Reading time. A two-tailed t test of the post test scores showed a statistically positive difference in the test scores favouring the experimental group.

Kariuki and Honeycutt (1998) which investigated whether or not music could be used as a tool to motivate students with emotional and behavioural disorders to develop positive attitudes toward writing, and whether or not these attitudes would result in improved writing skills. Kariuki and Honeycutt focused upon two 4th grade male students with emotional and behavioural disorders in a rural east Tennessee elementary school. Their results indicated that (a) the quality of basic writing skills improved overall when the students were exposed to music during writing assignments, (b) the students were immediately absorbed in the music and the calming effect helped them to ignore surrounding distractions (thus enabling them to focus on their writing assignments), (c) quantity of writing increased substantially in writing assignments with music while writing assignments without music were regarded as chores to be accomplished as quickly as possible, and (d) the students' attitudes towards writing improved (writing assignments were considered "exciting" when exposed to music during writing). Savan, A (1999) in her research investigated the possibility that specific properties of certain Mozart orchestral compositions which, in combination, improve the co-ordination skills of pupils with emotional and behavioural difficulties. Audio tapes of Mozart orchestral compositions provided a sound stimulus for ten boys aged 12+ identified as having special educational needs and emotional and behavioural difficulties. These tapes were then adulterated in an attempt to establish which qualities were producing the effects. Measurements of blood pressure, body temperature, and pulse rate were measured to establish which sound stimulus had an effect on the physiology and metabolism of the subject. In each case an improvement in co-ordination was observed, accompanied by a corresponding drop in the aforementioned physiological parameters and an observed improvement in behaviour. Rashidi & Faham (2011) investigated the effect of classical music (Mozart Sonata) on the reading comprehension performance of two groups of Iranian students in an English institute in Iran. The study compared two groups of Iranian English students (N=60) over a period of three months: one was taught reading comprehension with a music background and the other with no music background whatsoever. The results of the study showed a significant difference between the performance of the group exposed to music and the performance of the other group not exposed to music.

The group taught reading comprehension with a music background outperformed the other taught it with no music background. Silor (2012) investigated the effectiveness of classical music as background in reading story video using headset in improving comprehension of students with multiple intelligence. The results show that students who read the stories and answered the comprehension examination with the use of classical music as background in the story video, got higher scores compared to the results of students taking the comprehension test without the background of classical music. Hence, findings revealed that students with multiple intelligence in music could really comprehend effectively once there is classical background music in the story video presentation with the used of headset while reading the story and analyzing the context. aas, S. E (2013) investigated positive relationship between music and academics using a variety of subjects and testing many different variables. The experiment was done over four weeks with four Algebra II classes, two regular Algebra II classes and two accelerated Algebra II classes. To account for the four music types (classical, rap, rock, no music), and for the four quizzes over four weeks, a Latin Square design was used. When analyzing the results, a mixed effect linear model fit was used to accommodate absences, weeks, hours and music types. The data revealed that classical music had the most positive relationship with the quiz scores, even though most of the students confessed that they do not typically listen to classical music while doing their homework

#### **HYPOTHESIS**

- [1] There will be significant improvement in writing skills (speed and quality) after teaching with Hindustani classical instrumental music, santoor among students with learning disability.
- [2] There will be no significant improvement in writing skills (speed and quality) after a teaching without Hindustani classical instrumental music, santoor among students with learning disability.

#### **IV. RESEARCH METHODOLOGY**

The research undertaken to complete the study is experimental research design with a Quantitative approach. Patina Inclusive School, Malakpet, Hyderabad was chosen for the research work. The study comprised of four (2 male and 2 female) students with learning disability studying in Grade 5 of age group 10 years. Non Probability sample design and purposive sampling techniques were used.

#### **V. PROCEDURE**

Group A comprised of 2 students with learning disability (1male and 1 female) and had Hindustani classical instrumental music santoor, raag Kirwani as the background while writing. This background music was a pre-recorded music available online. The musician who played this raag on santoor is Pandit Shiv Kumar Sharma, who is considered a stalwart musician in the field of santoor. Group B also comprised of 2 students with learning disability (1male and 1 female) and had no Hindustani classical instrumental music as the background while writing. Both the group of students (Group A and Group B) were engaged in writing activities for which they received feedback (content, syntax, vocabulary) daily at the end of the session. They worked on writing skills and writing strategies individually as well as in groups. Student had a formal in class creative writing assignment, a picture prompt is presented with a sentence and the student is given 2 to 3 minutes to think and write a small passage in 5 minutes, along with regular writing practice. In addition there was a weekly writing homework assignment on a given topic (a rough draft using graphic organisers and final copy). The writing skills were assessed on fluency, content, syntax, vocabulary and sentence formation. The duration of the study was for 12 weeks/ sessions of one and half duration.

#### **VI. RESULTS**

Handwriting Speeds analysis and Handwriting checklist developed by Pollock., et.al (2009) was undertaken to objectively measure various writing skills. Students who were exposed to background Hindustani classical music santoor improved from total 27.5 to 51.2 words correct per three minute and the students who were not exposed to music also improved from total 32 to 43 words correct per three minute, but the difference of improvement is more when students are exposed to background music Hindustani classical music santoor.

TABLE 1

\*Handwriting Speeds (letters per min)

Group A	Pre (Before using Background Music) Speed	Post (After using Background Music) Speed	Group B	Pre (No Background Music) Speed	Post (No Background Music) Speed
EA	14	25	CC	17	20
EB	13.5	26.2	CD	15	23
<b>Total</b>	27.5	51.2		32	43

\*Handwriting speeds for children grades 1 to 6. Handwriting Assessment Protocol- 2<sup>nd</sup> edition (N. Pollock, J. Lockhart, B. Blowes, K. Semple, M. Webster, L. Farhat, J. Jacobson, J. Bradley & S. Brunetti, 2009, McMaster University) with permission

STATISTICAL ANALYSIS

Samples					
	1	2	3	4	Total
N	2	2	2	2	8
Σx	27.5	51.2	32	43	153.7
Mean	13.75	25.6	16	21.5	19.2125
Σx <sup>2</sup>	378.25	1311.44	514	929	3132.69
Variance	0.125	0.72	2	4.5	25.6755
Std. Dev	0.3536	0.8485	1.4142	2.1213	5.0671
Std. Err	0.25	0.6	1	1.5	1.7915

ANOVA summary Independent Samples k=4

Source	SS	df	MS	F	P
Treatment [between groups]	172.3838	3	57.4613	31.29	0.003089
Error	7.345	4	1.8362		
Ss/Bl					
<b>Total</b>	179.7288	7			

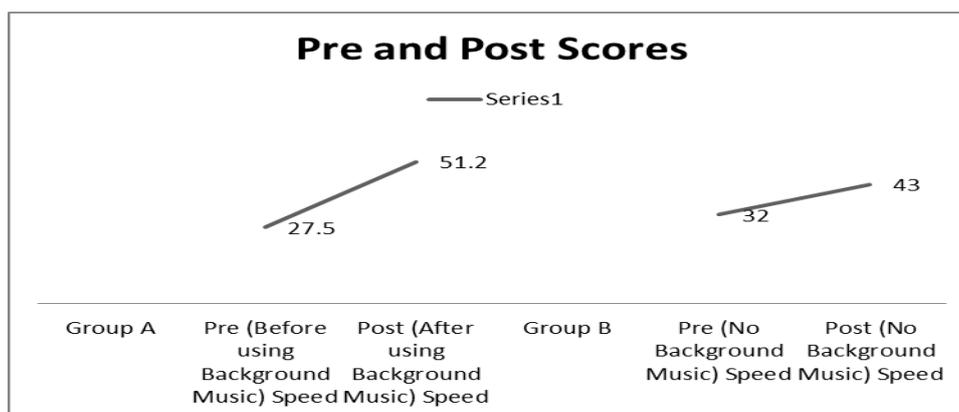
Tukey HSD Test

HSD[.05]=5.52; HSD[.01]=8.69, M1 vs M2 P<.01, M1 vs M3 non-significant

M1 vs M4 P<.05, M2 vs M3 P<.01, M2 vs M4 no-significant, M3 vs M4 no-significant

So, there is significant difference among the scores, which indicates that somehow improvement in writing skills have taken place.. Hence the null hypothesis (H<sub>0</sub>) is rejected.

FIGURE 1



**Handwriting analysis Checklist:** The content of a student’s writing sample can also be analyzed to examine

**TABLE 2**

<b>Group A</b>	<b>Pre (Before using Background Music)</b>	<b>Post (After using Background Music)</b>
	Imprecise letter formation e.g. closure errors, lack of finish of strokes	Letter formation improved
	Irregular spacing between letters and words	Some irregular spacing
	Crowding	Crowding reduced
	Poor orientation to baseline	Better
	Poor use of margins	Better
	Poor organization on page	Better
	Letter omissions or transpositions e.g. saw” for “was”	Minimal omissions
	Mixing of upper and lower case letters	Not much mixing
	Punctuation errors or omissions	Reduced
	Capitalization errors or omissions	Reduced
	Word omissions or repetitions	No omissions
	Simplistic vocabulary	Vocabulary improved
	Ideas poorly sequenced or linked	Better ideas developed
	Frequent spelling errors for grade level	Spelling errors reduced
	Frequent sentence structure and/or grammatical errors	Reduced
	Frequent punctuation errors or omissions	Reduced

**TABLE 2**

<b>Group B</b>	<b>Pre (No Background Music)</b>	<b>Post (No Background Music)</b>
	Imprecise letter formation e.g. closure errors, lack of finish of strokes	Precise letter formation but lack of finish of strokes
	Irregular spacing between letters and words	Irregular spacing between letters and words
	Crowding	Crowding
	Poor orientation to baseline	Poor orientation to baseline
	Poor use of margins	Proper use of margins
	Poor organization on page	Poor organization on page
	Letter omissions or transpositions e.g. “saw” for “was”	Minimal omissions
	Mixing of upper and lower case letters	Mixing of upper and lower case letters was reduced
	Punctuation errors or omissions	Punctuation errors or omissions
	Capitalization errors or omissions	Capitalization errors or omissions
	Word omissions or repetitions	Word omissions or repetitions
	Simplistic vocabulary	Vocabulary improved
	Ideas poorly sequenced or linked	Ideas poorly sequenced or linked
	Frequent spelling errors for grade level	Frequent spelling errors for grade level
	Frequent sentence structure and/or grammatical errors	Frequent sentence structure and/or grammatical errors
	Frequent punctuation errors or omissions	Frequent punctuation errors or omissions

## VII. DISCUSSION

Writing problems may stem from a variety of causes, most commonly: language, visual spatial or motor difficulties, or a combination of these. Pollock., et.al (2009). Pg.14. The handwriting speed and also the content of the writing among students belonging to Group A who were exposed to Hindustani Classical Music Santoor improved as compared to Group B who were not exposed to music. The performance of the students not exposed to background music also improved but the improvement is not as much compared to those students who were exposed to Hindustani Classical Music Santoor. So it can be concluded that using Hindustani Classical Music Santoor as the background was beneficial for improving the writing ability of students with learning disability.

## VIII. CONCLUSION

Music has a positive effect on the concentration level, the silence between two musical notes triggers the brain cells and neurons, which are responsible for the development of sharp memory. Hindustani classical instrumental music is integrated music, Flute and instruments like santoor and sarod are recommended for the enhancement of concentration and memory (Bhat, J.M. R (n.d.). As Learning disabilities (LD) are neurologically-based processing problems and music stimulates the brain centres that deal with reading, writing, thinking, analysing and planning skills (Bhat, J.M. R (n.d.), Hindustani classical instrumental music in the background proved beneficial for the children with learning disabilities.

## IX. LIMITATION

The first and foremost limitation of this study is that the sample was not cross sectional. As the researchers were associated with the Institute, the study was restricted to that particular place. There is no external validity of the study. Second limitation is the size of the sample. The sample size is too small, hence the results cannot be generalised. Third limitation is the time period which was of 12 weeks. Perhaps a 6 month study would have yielded a better result. Fourth limitation is that it because of the size of the sample it could not be ascertained if music has negative impact or even no impact on writing skills.

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