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Musicality and Musical Sensitivity in Children

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Abstract--- *This research paper addresses one of the fascinating questions, Are girls more musical sensitive and emotionally expressive than boys? This study is a part of a larger project on Music and Children. Music is one of the most seminal aspects of human beings and it manifests as unspoken desire and human essence in their expressions of everyday life. It is one of the most aesthetically sophisticated forms of human expression. Music is the essence of nature and it knowingly or unknowingly touches the soul of life from the womb to the tomb. The musical sensitivity and creativity of a child starts from the womb of its mother. The fetus lives to the rhythm of its mother's heartbeat sound and emotion of its mother's voice. As it grows, it expresses emotions by responding to songs and sounds through movements. What fascinates us is how do boys and girls express their musical creativity and differ in responding to different musical forms. To understand children's knowledge about music and musical sensitivity the researcher has randomly selected 120 students (73 female and 47 male children) from the schools of Hyderabad. Administering the appropriate tests the researchers collected the data and the analysis of data revealed significant differences between boys and girls with respect to their musical sensitivity*.

Keywords--- *Musicality, Music Knowledge, Musical Sensitivity, Musical Creativity and Music Education*.

I. INTRODUCTION

Do boys and girls differ in cognition of music? Do girls have superior music abilities than boys? Who is more sensitive and creative in music? These are some of the fascinating questions in the contemporary discourse in music research. Contemporary researchers are taking different philosophical positions in answering these questions. Researchers in neurobiology and neuro-cognitive psychology are generating evidence that indicates the underlying connection between neural circuitry and behavioral differences (Levitin and Tirovolas, 2009; Tirovolas and Levitin, 2011). For these researchers the neural differences and their products i.e., behavioral differences vary along a continuum. Such sexually dimorphic behaviorsin males and females are determined by their respective nervous system and brain configuration.

The researchers Dianna Vidas, Genevieve A. Dingle and Nicole L. Nelson (2018), whoconducted intensive research on music and emotions say, *"Music is found in every known human culture While some argue that music is a by-product of other systems, and serves no adaptive role in human evolution, others take a position that music making evolved, at least partially, as a tool for experiencing shared intentionality, and maintaining social cohesion. Research in this area has focused on the overlapping neurophysiological, cognitive, and perceptual processes in common between music and language" (*McDermott Hauser, 2005; Jentschke, 2016; Patel, 2008; Cross, 2016; Kirschner & Tomasello, 2010).

Functional Magnetic Resonance Imaging (fMRI) and electrophysiological measures revealed significant

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differences between male and female brain activities ((Koelsch et al., 2003and 2005). Recent investigations also indicating the neural sex differences influence on the way males and females process and predict musical structures (Thorpe et al. 2012). Researchers in cognitive neuropsychology observed sex differences in various cognitive functions and abilities. They found boys very strong in visuospatial cognition and girls better at aspects of verbal cognition (Kimura, 1999; Halpern, 2013).

Recent research in the field of cognitive linguistics and communication studies is informing us "that men and women differ in the pitch range of speech, but the two sexes also differ in habitual speech styles and intonation patterns. Women's speech moves over a wider pitch range, and has greater dynamic flexibility, with more rapid pitch excursion, whereas men's speech is characterized by less dynamism. These differences have been interpreted as showing greater felt emotion and empathy in women. These studies indicate the presence of differential levels and styles of activity and responsiveness between males and females when engaging in communicative behaviors."(Sergeant and Himonides, 2014 p.4; Fernald, 1989; Daly and Warren, 2001).

The researchers, who are inclined towards socio-cultural constructivist position are arguing that music is primarily a social phenomenon and that musical meanings and interpretations are socially and culturally constructed. (Olsson, 2007 p.989) For them music is part of our social and cultural identity (Frith, 1996 p.124). A cursory look at the inherited legacy of music informs us the dynamics of the historical transformations, transfigurations and metamorphosis of the various musical forms and styles. Furthermore, it also apprises us how power operates in structuring socio-cultural space and consequently knowledge of music (Green, 1997 p.139). According to them "music is essentially a gendered discourse and the history of musical forms as a heavily gendered legacy"(McClary, 2002; Sergeant and Himonides, 2014).

According to Susan Hallam (2006), "Those supporting a sexual selection theory argue that male musical performance influenced female choice of mate. This may be why music is so important during adolescence. While this is an attractive proposal, it does not explain female interest in music, although musical performance might equally contribute to male mate selection. Other theories propose that music evolved from emotional or impassioned speech or indeed was an imitation of bird song. Several authors have proposed that music developed as a result of the mother–child relationship, in particular soothing and comforting behaviour that led to the development of lullabies. This theory is supported by evidence that the human brain has systems for music perception which operate from birth, enabling 'significant nonverbal communication in the form of music' (Gaston, 1968; Miller, 2000; Cross, 2003; Huron, 2003)

Musical sensitivity is an aesthetic experience and aesthetic sensitivity. Ability to perceive, react or respond and produce music aesthetically. It exists in all human beings but it varies from individual to individual. Some people are highly creative in music and some others are with low level of sensitivity towards music. The question, is the human tendency toward musicality better thought of as the product of a specific, evolved instinct or an acquired skill? In other words is music a human instinct or an acquired skill? And most importantly, how sex or gender background influences one's musicality? Till today there are no final answers to these questions. Researchers from different specialized background are floating different theories (Pinker, 1997; Marcus, 2012) and there is no

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consensus among them in addressing such seminal questions in music research.

Musical knowledge and musical sensitivity is generally considered as musicality. It is an ability to perceive, understand, interpret and experience the nuances of music along with creative production of different music forms. In other words musical receptivity and musical creativity are two important aspects of musicality of a person. People who are receptive can distinguish the differences in pitch, rhythm, harmony etc. According to Christopher Sutton (2017), the Director of Musical U, musicality can be construed as a set of skills and it may comprise the following skills: Playing by ear; Singing in tune; Jamming; Having good rhythm; Writing music; Writing notation; Improvising a solo; Talking music; Understanding Music Theory; Clapping in time; Knowing your instrument inside and out; Tuning your instrument by ear; Reading notation; Sight-reading music; Playing from a lead sheet; Performing live and Playing multiple instruments.

While recognizing the importance of music in school education the NCERT's, India document entitled "National Curriculum Framework (NCF)- 2005 has recommended.

"Art as a subject at all stages covering all four major spheres, i.e. **music,** dance, visual arts and theatre….We must bring the arts squarely into the domain of the curricular, infusing them in all areas of learning while giving them an identity of their own at relevant stages."

This paper makes an attempt to study the differences between boys and girls with respect to musical knowledge and musical sensitivity.

II. SIGNIFICANCE OF THE STUDY

The study of the Music knowledge and musical sensitivity of the children in different schools reveal the interests, likes and dislikes about music and music personalities of present and past. The test of Music knowledge of the children may reveal abilities in recognizing ragas, songs, musicians & music directors, types of music and musical instruments. The study would reveal the sensitivity of music by observing their abilities in composing music, singing ability of popular songs, listen and reproduce aalapana and ragas. Listening to music is a hobby of child where music inspires though, reflection and emotions. Rhythm and tone in music stimulates moods such as joy, sorrow or anger. Music makes a child to recognize beauty, makes more compassionate and fully human. The enhancement of music knowledge and sensitivity is done through composing, performing and improvising the music thereby developing problem solving skills, synthesizing skills and analytical abilities. This helps a complete quality education. Hence to develop learning processes in the classroom, music based curricular activities and practices are necessary.In teaching learning processes music may be integrated to facilitate easy learning. There is a lot of scope to integrate music in teaching subjects like, Math, Science and Social studies. Teachers need to understand the background knowledge that children have and that they bring to the classrooms. In fast changing circumstances and global changes around teachers' need think seriously about how to work with such students who are well informed with latest knowledge. It is challenging for teachers to work in such differential classrooms. Students' understand difficult concepts very easily when presented them with emotionally charged musical expressions. In order to make classroom learning successful it is necessary to think how to bring boys and girls together and involve them in cooperative and collaborative learning. Building such positive learning environment with emotionally and

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aesthetically informed subject matter would certainly create space for mutual exchange of musically loaded experiences. Hence, the significance of the study.

III. OBJECTIVES

1. To study children's knowledge about music with respect to songs, ragas, musicians and music directors, musical instruments and different types of music.
2. To examine children's musical sensitivity with respect to their ability of singing, reproducing music and composing music.

IV. RESEARCH PROCEDURES

4.1. Population and Sample

The secondary school children of class IX is the population of the study. Stratified random sampling method was adopted to draw the sample of the study. The final sample comprises a total of 120 students (73 female and 47 male children) from private, aided and government schools with CBSC and SSC curriculum.

4.2. Hypotheses of the Study

1. Girls and boys differ significantly with respect to their knowledge of music.
2. There are significant differences between girls and boys with respect to musical sensitivity.

4.3. Tools of the Study

The test tool is a structured one. The tool comprised of two parts first part is a personal data of the respondents and second part is related to the children's knowledge about music and musical sensitivity. To study children's knowledge about music, items related to ragas, musicians and music directors, musical instruments, different types of music, and different parts of a song. The other part is devoted for examining children's musical sensitivity and items included are related to the ability of singing, reproducing music and composing music. The items developed in the tool were presented to a team of five experts for establishing face validity and content validity.

V. RESULTS AND DISCUSSIONS

5.1. Children's Knowledge about Music

For the purpose of examining children's knowledge about music items related to the following themes were presented.

1. Names of ragas
2. Parts of a song
3. Names of musicians and music directors,
4. Musical instruments and
5. Different types of music.

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Knowledge Aspects	Knowledge in Music											
	Above Average			Average			Below Average			Total		
	B	G	Total	B	G	Total	B	G	Total	B	G	Total
Ragas	3	3	6 (5%)	5	6	11 (9.5%)	50	53	103 (85.5%)	58	62	120
Songs	25	35	60 (50%)	11	13	24 (20%)	15	21	36 (30%)	51	69	120
Musicians and Music Directors	30	34	64 (53.4%)	12	18	30 (25%)	13	13	26 (21.6%)	55	65	120
Musical Instruments	28	33	61 (50.9%)	12	12	24 (20%)	19	16	35 (29.1%)	59	61	120
Types of Music	6	8	14 (11.6%)	7	9	16 (13.4%)	35	55	90 (75%)	48	72	120

A cursory look at the above distribution indicate that by and large the responses of boys and girls are similar on the above five aspects of music. To draw objective inferences the data is subjected to statistical testing with the following alternative hypothesis.

Girls and boys differ significantly with respect to their knowledge in music.

The above hypothesis has been translated into null form for the purpose of testing.

Girls and boys do not differ significantly with respect to their knowledge in music.

Since the data related to children's knowledge is of interval type and its distribution is in normal form a parametric statistical test, "t-test", is adopted in this study. The results are shown in the following table.

Gender	N	Gender	Mean	SD	t-Value	p
Girls	73	Girls	27.5	2.6	1.3138	0.1915
Boys	47	Boys	26.8	3.2		

The above table reveals that the t-value is not significant at 0.05 and at 0.01 level of significance. The standard error of difference is 0.541and the null hypothesis is accepted. Hence it is inferred that the boys and girls do not differ significantly with respect to their knowledge in music. This may be because boys and girls are by and large equally exposed to music at home and other social spaces.

5.2. Musical Sensitivity in Children

The other important objective of this study is to understand how sensitive children are to music and alsohow boys and girls differ with respect to musical sensitivity. The following items are administered on the children selected for this study.

1. Compose Music to the given lyrics (weightage 20)
2. Singing ability of popular songs (weightage 40)
3. Listen and Reproduce (weightage 40)

The results are presented below with respect gender background of the respondents.

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Different Aspects of Musical Sensitivity	Musical Sensitivity											
	Above Average			Average			Below Average			Total		
	B	G	Total	B	G	Total	B	G	Total	B	G	Total
Compose Music	3	3	6 (5%)	15	19	34 (28.4%)	37	43	80 (66.6%)	55	65	120
Singing Ability of Popular songs	34	39	73 (60.8%)	15	21	36 (30%)	5	6	11 (9.2%)	54	66	120
Listen Reproduce	4	6	10 (8.4%)	40	44	84 (70%)	13	13	26 (21.6%)	57	63	120

The following alternative hypothesis is formulated to know the differences between boys and girls.

Girls and boys differ significantly with respect to musical sensitivity.

The above hypothesis has been translated into the following null form for the purpose of testing it statistically.

Girls and boys do not differ significantly with respect to their musical sensitivity

This null hypothesis is tested with t-test, since the data collected about children's knowledge is in interval form. The results are shown in the following table.

Gender	N	Mean	SD	t-Value	p
Girls	73	67.54	5.68	25.8261	.0001
Boys	47	34.75	8.23		

The above p-value clearly indicates that the calculated t-value 25.8261 at 118 degrees of freedom and with standard error of difference 1.270 is significant. Hence the null hypothesis is rejected. Therefore it may be concluded that with respect to musical sensitivity the difference between boys and girls is statistically significant.

Many research studies corroborate these findings. Sergeant and Himonides, (2014), who conducted extensive research studies says, "It is self-evident that men and women differ in the pitch range of speech, but the two sexes also differ in habitual speech styles and intonation patterns. Women's speech moves over a wider pitch range, and has greater dynamic flexibility, with more rapid pitch excursion, whereas men's speech is characterized by less dynamism. These differences have been interpreted as showing greater felt emotion and empathy in women. These studies indicate the presence of differential levels and styles of activity and responsiveness between males and females when engaging in communicative behaviors" These findings were also supported by the studies conducted by Daly and Warren (2001) and Fernald (1989).

The studies conducted by Zhukov (2007) and Nielsen (2004) found that boys and girls differ in their approach towards musical tasks and activities. They found girls more submissive and obedient in taking music lessons from their teachers and boys more critical in selecting and working on their tasks. What is interesting finding in these studies is that girls tend to focus more on expression and boys on structures of the tasks and lessons. Many studies (Long, Hallam, Creech, Gaunt, & Robertson, 2012) found that in learning music, female students value the ideas and suggestions of their teachers and parents and always look forward to hear their interpretations. In contrast, boys focus more on their peer group and friends. With respect to the use of practice strategies in learning music girls are

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more efficient than boys. The studies conducted by Susan Hallam (2004, 2016) and her team support the findings of the present study.

VI. CONCLUSIONS

Research studies in cognitive neurosciences and the contemporary studies in social psychology and its interdisciplinary areas are clearly indicating the sexual differences in various cognitive and non-cognitive domains, including music. Human cognition is highly complex and multifaceted. Musical expressions in human beings are socially and culturally constructed cognitive phenomena. The hierarchically structured social space gets reflected and influence on the formation of attitudes, thoughts, and feelings. Every discourse and the gendered spaces around children nurture and groom their interests and approaches towards music. Girls and boys who are expected to follow different prescriptive roles respond to music differently. Their upbringing, opportunities availed and socio cultural environment greatly influence their choices and manufacture their sensibilities. The findings of this one need to understand from these reflections.

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