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Pedagogical Integration of Sitar in Classroom Teaching: Effects on Student Engagement and Perceived Well-Being

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Abstract
The present study investigates the pedagogical integration of the sitar in classroom teaching and its impact on student engagement and psychological well-being among secondary school students aged 12–16 years.The study is based on a quasi-experimental research design involving a total sample of 80 students, equally divided into an experimental group (n = 40) and a control group (n = 40).The experimental group was exposed to a structured 45-day instructional intervention based on Raga Bhairav (morning raga), while the control group received conventional classroom instruction without musical integration. Standardized tools, including a Student Engagement Scale and a Psychological Well-being Scale, were used for pre-test and post-test data collection.The collected data were analyzed using descriptive and inferential statistical techniques, including mean, standard deviation, independent samples t-test, and ANCOVA. The results revealed that the experimental group demonstrated significantly higher levels of student engagement and psychological well-being compared to the control group after the intervention period. The findings indicate that sitar-based pedagogical integration, particularly through Raga Bhairav, fosters a more focused, emotionally balanced, and participatory learning environment. The study concludes that incorporating Indian classical music into classroom pedagogy can significantly enhance both academic engagement and psychological well-being among secondary school learners.

Keywords: Sitar, Student Engagement, Psychological Well-being, Raga Bhairav, Music Pedagogy, Quasi-Experimental Design, Culturally Responsive Teaching

Introduction

Music education has emerged as a significant dimension of contemporary pedagogy, contributing to the holistic development of learners by enhancing cognitive abilities, emotional regulation, and classroom participation. In modern educational discourse, music is increasingly recognized not only as an artistic discipline but also as an effective pedagogical tool that supports active learning and improves student engagement in diverse learning environments. Through rhythmic, melodic, and expressive experiences, music facilitates deeper cognitive processing and sustained attention among learners. Despite the growing recognition of music's educational value, most empirical research has predominantly focused on Western classical music systems and general music instruction methodologies. Instruments such as piano, violin, and guitar have been widely studied in relation to learning outcomes and cognitive development. However,

the pedagogical integration of Indian classical instruments remains relatively underexplored within formal classroom settings. Among these instruments, the sitar holds a prominent position in Indian classical music due to its rich tonal complexity, expressive capacity, and cultural significance. Incorporating indigenous musical instruments into classroom pedagogy aligns with the principles of culturally responsive education, which emphasize the inclusion of local knowledge systems and artistic traditions in teaching practices. Such integration has the potential to enhance learner engagement by connecting educational content with cultural identity and lived experiences. Furthermore, active engagement with musical instruments has been associated with improved psychological outcomes, including reduced stress levels and enhanced emotional stability among students. However, existing literature reveals a clear gap in the systematic exploration of how Indian classical instruments, particularly the sitar, can be effectively integrated into structured classroom teaching. While previous studies have examined the relationship between music, engagement, and psychological outcomes, limited attention has been given to instrument-specific pedagogical interventions within educational contexts. This lack of research highlights the need for empirical studies that bridge traditional Indian musical practices with contemporary educational frameworks.In response to this gap, the present study focuses on the pedagogical integration of the sitar in classroom teaching and examines its impact on student engagement and perceived psychological well-being. By combining principles of music pedagogy with culturally grounded instructional practices, this study aims to contribute to the development of interdisciplinary and culturally inclusive approaches in education. The findings are expected to provide valuable insights for educators, curriculum designers, and researchers interested in integrating performing arts into structured learning environments.

Literature Review

1. Music Education and Student Engagement

A substantial body of research has established the positive role of music education in enhancing student engagement and learning outcomes. Susan Hallam (2010), in a comprehensive review published in Oxford Review of Education, demonstrated that active participation in music education significantly improves students' motivation, concentration, and overall academic engagement. Hallam argues that music facilitates multi-sensory learning, thereby increasing cognitive involvement in classroom activities.

Similarly, E. Glenn Schellenberg (2004), in his study published in Psychological Science, found that music training is associated with improved cognitive performance and attentional control among students. These findings suggest that structured musical engagement can positively influence classroom behavior and participation. However, most of these studies focus on general music training rather than the integration of specific instruments within pedagogical frameworks, indicating a gap in instrument-based classroom research.

2. Instrumental Pedagogy and Learning Outcomes

Instrument-based learning has been widely studied in music education, particularly in Western contexts. Robert A. Duke (2005), in Journal of Research in Music Education, examined the role of deliberate practice in instrumental learning and found that structured instruction combined with feedback significantly enhances performance outcomes. In addition, Anders Ericsson et al. (1993), in their seminal work published in Psychological Review, introduced the concept of deliberate practice, emphasizing that skill acquisition in music depends on focused, goal-oriented training rather than passive exposure. Research associated with the American String Teachers Association further highlights that string instrument training improves motor coordination, auditory discrimination, and disciplined learning habits.

Despite these contributions, existing literature remains largely confined to Western string instruments such as violin and cello, with minimal attention given to non-Western instruments like the sitar in formal classroom pedagogy.

3. Music and Psychological Well-being

The relationship between music and psychological well-being has been extensively documented. Teresa Lesiuk (2005), in a study published in the Journal of Music Therapy, found that listening to music in workplace settings significantly improves mood and reduces stress levels, thereby enhancing task performance. Similarly, Markus V. Thoma et al. (2013), in PLOS ONE, demonstrated that music listening can reduce cortisol levels and physiological stress responses. These findings provide strong evidence for the stress-reducing potential of music. However, these studies are primarily situated within clinical or therapeutic contexts, and there is limited research exploring how such benefits can be integrated into everyday classroom pedagogy through active music-making.

4. Indian Classical Music and the Sitar: Academic Perspective

Research on Indian classical music has largely focused on its theoretical, aesthetic, and performance dimensions. Scholars such as Ravi Shankar have contributed significantly to the global recognition of the sitar as a concert instrument, while academic discussions have explored raga structures and performance practices. Nevertheless, there is a notable absence of empirical studies examining the pedagogical application of the sitar in formal educational settings. Unlike Western instruments, which are widely integrated into school curricula, the sitar remains underrepresented in classroom-based research. This highlights a critical gap in the literature, particularly in the context of culturally responsive pedagogy, where indigenous instruments can play a significant role in enhancing student engagement.

5. Critical Synthesis and Comparative Analysis

Existing literature demonstrates three major trends:

Research on music education confirms its positive impact on engagement and cognition (Hallam, Schellenberg).

Studies on instrumental pedagogy emphasize structured learning and deliberate practice (Duke, Ericsson).

Research on music and well-being establishes its stress-reducing effects (Lesiuk, Thoma).

However, these domains remain fragmented:

Instrumental pedagogy is largely Western-centric

Stress-related studies are therapy-oriented rather than educational

Indian classical instruments are culturally rich but pedagogically underexplored

This fragmentation indicates the absence of an integrated framework that combines:

Instrument-based pedagogy

Classroom engagement

Psychological well-being

within a culturally diverse context.

Research Gap

Based on the above review, the following gaps are identified:

There is a lack of empirical research on the integration of Indian classical instruments, particularly the sitar, within classroom pedagogy.

Existing studies on music and stress are predominantly clinical in nature, with limited application to educational environments.

There is an absence of research examining the combined impact of instrumental instruction on both student engagement and well-being.

Current music education literature lacks cross-cultural pedagogical models that incorporate non-Western musical traditions into structured classroom teaching.

This study addresses a critical gap in music education research by integrating the sitar, a traditional Indian string instrument, into classroom pedagogy and empirically examining its impact on student engagement and perceived well-being. By bridging Western pedagogical frameworks with Indian musical traditions, the study contributes to the development of culturally responsive and interdisciplinary approaches in music education.

Objectives of the Study

1. To examine the effect of sitar-based classroom instruction on student engagement among secondary school students.
2. To investigate the impact of Raga Bhairav-based pedagogy on students' psychological well-being.
3. To compare the engagement levels of students receiving sitar-based instruction with those receiving conventional classroom teaching.
4. To explore the role of Indian classical music in promoting culturally responsive classroom pedagogy.

Hypotheses of the Study

Null Hypotheses (H_0)

H_{01}: There is no significant difference in student engagement between the experimental group (sitar-based instruction) and the control group.

H_{02}: There is no significant difference in psychological well-being between the experimental group and the control group after the 45-day intervention.

H_{03}: There is no significant difference between pre-test and post-test scores of student engagement in the experimental group.

H_{04}: There is no significant difference between pre-test and post-test scores of psychological well-being in the experimental group.

Alternative Hypotheses (H_1)

H_{11}: There is a significant difference in student engagement between the experimental group and the control group.

H_{12}: There is a significant difference in psychological well-being between the experimental group and the control group after the 45-day intervention.

H_{13}: There is a significant improvement in student engagement scores in the experimental group after the intervention.

H_{14}: There is a significant improvement in psychological well-being scores in the experimental group after the intervention.

Research Methodology

The present study adopts a quasi-experimental research design to examine the pedagogical integration of the sitar in classroom teaching and its impact on student engagement and psychological well-being. The primary objective is to evaluate the effectiveness of sitar-based instructional practices in comparison with conventional teaching methods. A total of 80 secondary-level students were selected through a purposive

sampling technique, and they were equally divided into two groups: an experimental group (n = 40) and a control group (n = 40).The experimental group was exposed to a structured 45-day sitar-based instructional intervention, whereas the control group continued with traditional classroom teaching without any musical integration. During the intervention, Raga Bhairav (a morning raga) was used as the central musical framework due to its meditative, calming, and attention-enhancing characteristics, which are considered conducive to improving focus, emotional stability, and classroom engagement among learners.The intervention included systematic activities such as an introduction to the sitar, guided listening sessions of Raga Bhairav, rhythmic and melodic understanding, and structured classroom integration of musical exposure to enhance active student participation. Data were collected using a pre-test and post-test design with standardized instruments, namely the Student Engagement Scale and the Psychological Well-being Scale. In addition, classroom observation was employed to record behavioural changes, participation levels, and learning responsiveness throughout the intervention period. The collected data were analyzed using appropriate statistical techniques, including mean, standard deviation, and t-test, while ANCOVA was applied where required to control initial differences between groups and ensure valid comparison of outcomes. The study is confined to a specific sample of secondary school students; therefore, the findings are context-specific and should be interpreted within the limitations of the research design.

Ethical Considerations

Prior permission was obtained from the respective school authorities before conducting the study. The participants were informed about the purpose and nature of the research, and their participation was voluntary. Confidentiality and anonymity of the participants' responses were maintained throughout the study. Ethical guidelines related to educational research were followed during data collection and analysis.

Data Analysis and Results

The data collected from 80 secondary-level students (experimental group = 40, control group = 40) were analysed using descriptive and inferential statistical techniques, including mean, standard deviation, independent samples t-test, paired samples t-test, and ANCOVA. The analysis was conducted to examine the effect of a 45-day sitar-based instructional intervention (Raga Bhairav) on student engagement and psychological well-being.

1. Analysis of Student Engagement

The pre-test results indicated no significant difference between the experimental and control groups, confirming baseline equivalence. After the 45-day intervention, the experimental group showed a marked increase in mean scores of student engagement compared to the control group. The independent samples t-test on post-test scores revealed a statistically significant difference ($p < 0.05$) between both group Further, ANCOVA results using pre-test scores as covariates confirmed that the adjusted post-test mean of the experimental group was significantly higher than that of the control group. This indicates that the improvement in student engagement was attributable to the sitar-based instructional intervention rather than initial group differences.

Thus, H_{01} is rejected and H_{11} is accepted.

2. Analysis of Psychological Well-being

The pre-test scores showed no significant difference between both groups, indicating homogeneity at baseline. Post-test analysis revealed that the experimental group demonstrated significantly higher psychological well-being scores compared to the control group. The independent samples t-test confirmed

that this difference was statistically significant at the 0.05 level. ANCOVA results further validated these findings by showing a significant adjusted mean difference in favour of the experimental group, indicating that the intervention had a meaningful effect on students' psychological well-being.
Therefore, H_{02} is rejected and H_{12} is accepted.

3. Within-Group Analysis (Experimental Group)

A paired samples t-test was conducted to compare pre-test and post-test scores within the experimental groups. The results indicated a significant improvement in both student engagement and psychological well-being after the 45-day sitar-based intervention. The post-test mean scores were significantly higher than pre-test scores, confirming the effectiveness of the intervention over time.
Hence, H_{03} and H_{04} are rejected.

4. Interpretation of Findings

The overall statistical findings demonstrate that structured integration of Raga Bhairav-based sitar instruction significantly enhances both cognitive-behavioural and emotional dimensions of learning. The improvement in student engagement suggests increased attention, participation, and classroom responsiveness. Similarly, the improvement in psychological well-being reflects reduced stress levels and enhanced emotional stability among students exposed to musical pedagogy. The consistency between t-test and ANCOVA results strengthens the validity of the findings and confirms that the observed effects are due to the instructional intervention rather than sampling variability.

Summary of Statistical Outcomes

Significant improvement in student engagement ($p < 0.05$)
Significant improvement in psychological well-being ($p < 0.05$)
Experimental group outperformed control group after intervention
ANCOVA confirmed adjusted group differences
All null hypotheses were rejected

Conclusion

The present study investigated the pedagogical integration of the sitar, specifically through Raga Bhairav-based instruction, and its impact on student engagement and psychological well-being among secondary-level students over a 45-day intervention period. The findings of the study provide strong empirical evidence that structured incorporation of Indian classical music within classroom pedagogy has a significant positive influence on both learning engagement and emotional well-being. The statistical analysis revealed that students exposed to sitar-based instructional practices demonstrated significantly higher levels of engagement compared to those taught through conventional methods. Similarly, a notable improvement in psychological well-being was observed in the experimental group, indicating reduced stress levels, improved emotional balance, and enhanced attentional focus. These results were further validated through ANCOVA, confirming that the observed differences were attributable to the intervention rather than initial group variation. The study concludes that the sitar, when integrated meaningfully into classroom teaching, functions not only as a cultural and artistic medium but also as an effective pedagogical tool that enhances the overall learning environment. The use of Raga Bhairav played a significant role in creating a calm and focused classroom atmosphere, thereby supporting both cognitive and affective dimensions of learning. Overall, the findings highlight the importance of incorporating indigenous musical traditions into modern educational practices. This integration contributes to the

development of culturally responsive pedagogy and offers a holistic approach to education that addresses both academic engagement and psychological well-being of learners.

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