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**| RESEARCH ARTICLE**

## **The Impact of Different Types of Background Music on Teaching: Classroom Psychological Experiment**

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**| ABSTRACT**

Different types of background music have varying effects on classroom teaching. In this study, a focus on the attention analysis of 72 elementary school students revealed that slow-paced classical music significantly enhances students' attention. The experiment demonstrated a clear positive correlation between choosing this type of music and improved learning outcomes. Furthermore, the research delved into the different reactions of students across various age groups to the same background music, providing a robust foundation for multimodal teaching. This discovery not only offers valuable insights into the field of education but also guides the design of personalized teaching and learning environments. It urges educators to pay closer attention to the potential impact of music on students' learning experiences, facilitating better adaptation to the learning needs of students across different age groups.

**| KEYWORDS**

Background music, Attention, Teaching

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### **1. Introduction**

The impact of different types of background music on classroom teaching varies, and this paper primarily focuses on the influence of background music on attention, which, in turn, affects students' learning and teachers' teaching. The impact of background music on participants initially emerged in non-educational fields such as driving and work environments. Research on this topic in mainland China began with the publication of "The Impact of Background Music on Learning" in 2006. Many related studies in psychology have since examined the effects of different types of background music on cognitive processes.

Psychological research often takes an empirical approach to provide scientific evidence for improving teaching and learning. In practice, integrating experimental research with teaching is essential for achieving breakthroughs and innovations in education.

### **2. Literature Review**

#### **2.1 Definition of Background Music**

With the development of technology, contemporary students have embraced the advantages of technology and electronic products in classroom teaching. Some students like to use music as background while studying, although this behavior is believed to affect learning efficiency. This paper aims to analyze the impact of background music on classroom teaching through classroom psychological experiments.

Background music, often abbreviated as BGM (Background Music), serves to mask environmental noise in public places and is created by music producers to provide a pleasant and comfortable atmosphere. According to the definition in the Baidu dictionary,

background music refers to music used as a backdrop in films, TV shows, animations, and video games, typically without vocals. Background music has a diverse range of genres, and the selection of music types for experiments is well-founded.

Based on the classification in music history, background music can be categorized into popular music, rock music, jazz music, natural sounds, and classical music. Researchers abroad often divide background music based on its tempo, as seen in the study by William R. and Lewis (1996). Salame and Baddeley (1989) categorized music based on the presence of lyrics, resulting in three background conditions: music with lyrics, instrumental music with lyrics, and no music. Most foreign researchers use these classifications. (Li N., 2006; Jiang X., 2014; Chen Y. & Wu Y., 2015, etc.)

This study plans to use classical music and pop music with different tempos and a no-music background to observe their effects on students' learning performance.

## **2.2 The Impact of Background Music on Cognition**

Humanistic teaching methods advocate providing a relatively relaxed and friendly teaching environment for learners, as it is believed to enhance cognitive activities. Scholars, both domestic and international, have explored the effects of different types of background music on various aspects of cognition, including memory, reading comprehension, and attention.

Research on the relationship between background music and reading comprehension dates back to Hall (1952), who suggested that music can stimulate students' interest in reading, with the impact of different types of music on reading outcomes being similar. Kiger (1989) studied complex information processing in specific groups and found that soft music enhances processing speed and performance. Furnham and Baddeley (1997) investigated the relationship between reading comprehension and background music based on participant personality, reaffirming the correlation between reading comprehension and background music. Stephanie Hurst (2001) compared the performance under classical music and no-music conditions, with classical music leading to higher reading comprehension scores. Chou, P. T. M. (2010) found that high-intensity music can be more distracting, affecting college students' reading.

Domestic research on this topic started later than international research and is less systematic and scientific. Studies by Li N. (2006) and Wang J. (2006) suggested that the effect of classical or light music on reading comprehension is not a simple positive relationship and is related to participant music preferences, age, and task difficulty.

In addition, memory, as an essential component of cognitive processing, has also attracted researchers' attention. Felix (1993) explored the impact of romantic music and rock music on immediate memory. Wang F. and Gao P. (2009) introduced the factor of familiarity with background music, showing that classical music and pop music affect memory differently based on familiarity. Chen Y. (2015) conducted a comprehensive analysis of music tempo and investigated the influence of music type, tempo, and the type of memory material on memory performance. Li W. (2008) studied the relationship between music and memory, considering age differences and cognitive levels of participants.

## **2.3 The Impact of Background Music on Teaching**

The most profound impact of background music on teaching and learning is associated with the "suggested learning" method proposed by Bulgarian philosophy Ph.D. Lonazov (1989). This method was a significant departure from traditional teaching, breaking the mechanical, passive learning approach by emphasizing the need to engage various aspects of the body, emotions, and rationality in the learning process. It introduced music with a similar form and rhythm as an auxiliary means of teaching and learning. The key characteristic of such music is a soothing rhythm and positive emotional tone. Playing this music as a background condition allows students to synchronize their breathing and heartbeat with the beat, matching the rhythm of their reading with the music. This approach not only eliminates tension during learning but also ensures that students use their attention effectively, enhances brain activity, and improves learning outcomes.

Furthermore, Rauscher (1996) and Anders, J. T. (2011) demonstrated that background music can be introduced as a teaching strategy in classrooms to improve classroom management.

Domestic research has also focused on the impact of background music on subject teaching (Zhang Z., 1985; Ding X., 2006). Studies have found that introducing music in various stages of teaching can effectively create a conducive classroom atmosphere, especially in primary school Chinese classes.

## **3. Methodology**

### **3.1 Participants**

A total of 72 students were selected, comprising 24 students from each of the third, fourth, and fifth grades.

**3.2 Method (Using Scales and Data Analysis)**

This study employed an experimental approach using a 2×2×3 three-factor mixed experimental design. It included two types of background music (classical music, Chinese pop music), two rhythms of background music (fast tempo, slow tempo), and three grades (third grade, fourth grade, fifth grade). The type of background music was an intra-participant variable, while the rhythm of background music and grade were inter-participant variables. A control group (no music group) was set up, and the same group of participants completed tasks in a no-music background. The dependent variable was the time taken to complete the Stroop test.

Data were analyzed using the SPSS statistical software, employing analysis of variance (ANOVA), main effects analysis, and simple effects analysis.

Slow-paced classical music significantly enhanced attention in tasks for students of all three grades, while fast-paced classical music only disrupted the attention of third-grade participants.

Both fast-paced and slow-paced Chinese pop music significantly impeded attention in tasks for students of all three grades, with varying degrees of impact across different grade levels.

Table 1 Comparison of three musical backgrounds in the fast music condition

(I) Music Type	(J) Music Type	Mean Value Difference (I-J)	Criteria Error	Sig.a	differential 95% confidence intervala	
					lower limit	upper limit
Classical	Pop	-5.024***	.806	.000	-7.050	-2.997
		3.005**	.810	.002	.969	5.041
Pop	Classical	5.024***	.806	.000	2.997	7.050
		8.029***	1.018	.000	5.469	10.588
	Classical	-3.005***	.810	.002	-5.041	-.969
		-8.029***	1.018	.000	-10.588	-5.469

note : \*P<0.05,\*\*P<0.01,\*\*\*P<0.001

Table 2 Comparison of the three musical backgrounds in the slow-rhythm music condition

(I) Music Type	(J) Music Type	Mean Value Difference (I-J)	Criteria Error	Sig.a	differential 95% confidence intervala	
					lower limit	upper limit
Classical	Pop	-7.630***	.923	.000	-9.951	-5.309
		-3.345***	.541	.000	-4.705	-1.986
Pop	Classical	7.630***	.923	.000	5.309	9.951
		4.284***	.742	.000	2.419	6.150
	Classical	3.345***	.541	.000	1.986	4.705
		Pop	-4.284***	.742	.000	-6.150

Table 3: Main effects analysis of the background type

(I) Music Type	(J) Music Type	Mean Value Difference (I-J)	Criteria Error	Sig.a	differential 95% confidence intervala	
					lower limit	upper limit
Classical	Pop	-6.327***	.592	.000	-7.508	-5.145
		-.170	.477	.722	-1.122	.782
Pop	Classical	6.327***	.592	.000	5.145	7.508
		6.157****	.617	.000	4.925	7.388
	Classical	.170	.477	.722	-.782	1.122
		Pop	-6.157***	.617	.000	-7.388

## 5. Conclusion

### 5.1 Music Rhythm Facilitates Meaningful Learning

Based on the related research on the influence of background music on teaching and cognition, it is evident that background music significantly promotes learning for certain students. Tailoring personalized learning strategies according to each student's cognitive conditions and musical preferences and creating an environment with soothing classical music proves beneficial for meaningful learning.

### **5.2 The Promoting Role of Music Rhythm in Teaching**

The Multiple Intelligences Theory, proposed by Dr. H. Gardner, introduces a novel framework for human intelligence, acknowledging diverse ways of thinking and understanding. Human intelligence comprises linguistic intelligence, musical-rhythmic intelligence, bodily-kinesthetic intelligence, among others. For learners with a preference for musical-rhythmic intelligence, incorporating music into teaching not only enhances classroom instruction but also sparks student interest. This approach contributes to the improvement of classroom teaching while simultaneously stimulating students' engagement.

In conclusion, the integration of music, particularly with a focus on rhythm, emerges as a powerful tool in the educational landscape. The findings suggest that tailoring instructional approaches to individual cognitive styles and preferences, such as incorporating soft classical music, can significantly enhance the meaningfulness of learning experiences. The acknowledgment of multiple intelligences, including musical-rhythmic intelligence, underscores the importance of recognizing and leveraging diverse cognitive strengths in the educational context.

This research underscores the need for educators to be attuned to the individual differences in students' cognitive preferences and to adopt flexible teaching strategies. By acknowledging and incorporating the role of music rhythm in the learning process, educators can create a more inclusive and effective learning environment catering to the diverse needs of students. Further exploration and application of these findings in educational settings hold the potential to optimize teaching methodologies and contribute to the ongoing advancement of pedagogical practices.

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