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THE COGNITIVE EFFECTS OF ELECTRONIC DANCE MUSIC TO AUDITORY LEARNERS

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Abstract:
This study aims to determine the effectiveness of Electronic Dance Music as a learning component in helping grade 10 auditory learners in their cognitive development. This study analyses the Mozart effect: the sound theory to auditory learners. The idea is to attest to the effectiveness of Mozart's effect: in enhancing the cognitive development of grade 10 auditory learners. This study used Paired T-test to compare the effectiveness of using between respondents with EDM or without EDM. Hence, the researchers figured out that electronic dance music applies to auditory learners while answering any test. The cognitive effects of electronic dance music on auditory learners improved their cognitive aspects of learning. The researchers will provide links about electronic dance music for the teachers to play the downloaded music for activities. The EDM will be played during classroom activities to enhance students' performance and skills for auditory learners.

Keywords: cognitive, EDM, auditory learners, performance in music

1. Introduction

Music always impacts how one feels, behaves, and interacts. The connection between music and learning has been developing for many years. Some studies have shown that music can enhance cognitive abilities (Hall, 1952), and others have shown that it can hinder complex mental processes (Fogelson, 1973). Electronic Dance Music (EDM) is electronic music created initially for use within a nightclub setting or in an area for dance-based entertainment. It is created to be heard in the setting of a constant DJ set.

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According to Carol A. Smith and Larry W. Morris, Electronic Dance Music (EDM) is a kind of music that has a good influence on our mental functions. Studies have shown that students perform better when listening to serene music like EDM. A study conducted by Hallman, Price, and Katsarou (2002) supported this argument. Furthermore, they tested the effect of relaxing music on mathematics and memory performance tests in learners ranging from ages ten to twelve. The finding shows better performance on both tasks in the relaxing music state when compared with a no-music state. A thorough study of students shows that music serves as a vital communication medium, speaking directly to feelings. Men and women often compare these emotions with music, excitement, joy, and affection. Women were somewhat more likely to associate feelings with music and to use music for "*mood management*" (Wells, A. & Hakanen, E. (1991). EDM is an element of human culture that predates civilization. Today, it helps define who we are: it functions as a spiritual tool, a lynchpin that binds communities, an escape from the hectic existence of urban life, and so much more. It is linked to the socialization of humanity. Scott, G. (2014). EDM is played as a new communication medium to 21st-century learners from the journals.

Based on the various literature reviews done by the researchers, most of the results are that EDM is the best you can listen to when you are working because it keeps you active, and your brain operates at high speed and with clarity. Students love to listen to a type of music when they do their school work, without knowing the harmful effects of such practice. A type of music can have a confusing effect when one is introduced to a mentally challenging activity, perhaps because fewer cognitive resources are available when the awareness gets to the lyrics, emotions, and memories that such music can result. Furthermore, researchers see the gap among all the journals to test the effects of the EDM, whether it is a boon or bane used as a learning material for audio learners. It often misunderstands the student's behavior, which will affect the student's academic progress.

This study aims to determine the level of musical competence of learners to the cognitive functions of the Grade 10 students, identify its effects on the student's learning process, and how it will help students improve their cognitive function of the brain.

2. Conceptual Framework

"The Mozart Effect" is popularly known for its spectacle of a momentary enhancement of spatial-temporal abilities and skills in college students after listening to a Mozart piano sonata (K. 448). Many studies were published to conflate it to "The Mozart Effect" as time went by. This series of independent research studies support or elaborates more on the effects of music instruction. This happening caused issues and confusion has been perpetuated in various articles, such as the one by Waterhouse (2006), and continuously evolves in the minds of the general public. It means that music is a strong foundation and functions as a fundamental cognitive function. It also explains the origin and evolution of musical ability. Despite these stated facts, Mozart's music continuously gained significantly higher scores than the other six composers, namely, the repetition of

melody. In addition, Haydn's values were second-highest among Mozart's. According to a recent study in Korea that examined the influence of music on spatial learning ability, Mozart Effect is most effective and most assertive during neurogenesis, specifically in the hippocampus, where spatial reasoning is most active. According to several studies, listening to classical music can help students gain higher test scores.

On the contrary, based on Dr. Diane Bales' book entitled "Building Baby's Brain: The Role of Music", music does not result in higher IQ but in better thinking. The article isn't planned to demoralize perusers from accomplishing higher insight through music. However, to enable perusers to comprehend that music is associated with different characteristics that add to a man's resourcefulness.

This theory mentioned is used as a tool to identify how applicable Electronic Dance Music is and how effective and efficient it is in an auditory learner's learning process, and how it will help them improve and boost their cognitive development and function of the brain.

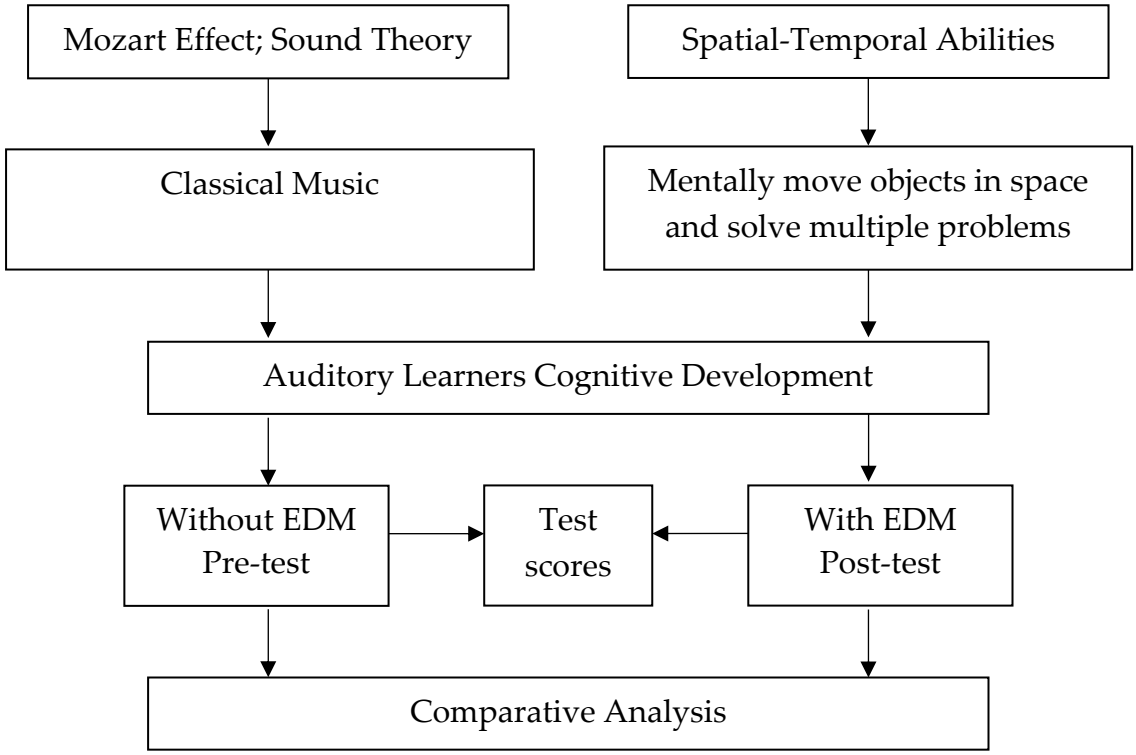


Figure 1: Conceptual Framework

3. Research Methods and Design

This study utilized a quantitative approach with a quasi-experimental research design employing pretest-posttest analysis. It is often integrated with individual case studies; the figures and results generated often reinforce the findings in a case study and allow some statistical analysis, although it is not a pure experimental because there is no control group.

The research aimed to define EDM, its effects on the learning process of auditory learners, and how it will help students improve their cognitive function of the brain. The researchers conducted the study in Don Vicente Rama Memorial National High School. Researchers found out that the school has a Special Program for Arts (SPA) curriculum that would help the students enhance their skills. The respondents were determined using the purposive sampling technique, which may prove essential when only limited numbers of people can serve as primary data sources for the research design and aims and objectives.

The researchers made a standardized reading comprehension test (ETS Toefl Junior, 2018) and determined the number of errors. The survey questionnaires were made based on the Educational Testing Service. Furthermore, the proponents recorded the completion time of each respondent upon answering.

The study uses the statistics in pretest and post-test, T-test of the mean of Smirnov-Kolmogorov Test. The tool was measured using a box-cox plot. Thus, it is valid and reliable with an index of 0.000 which means excellent.

4. Result and Discussion

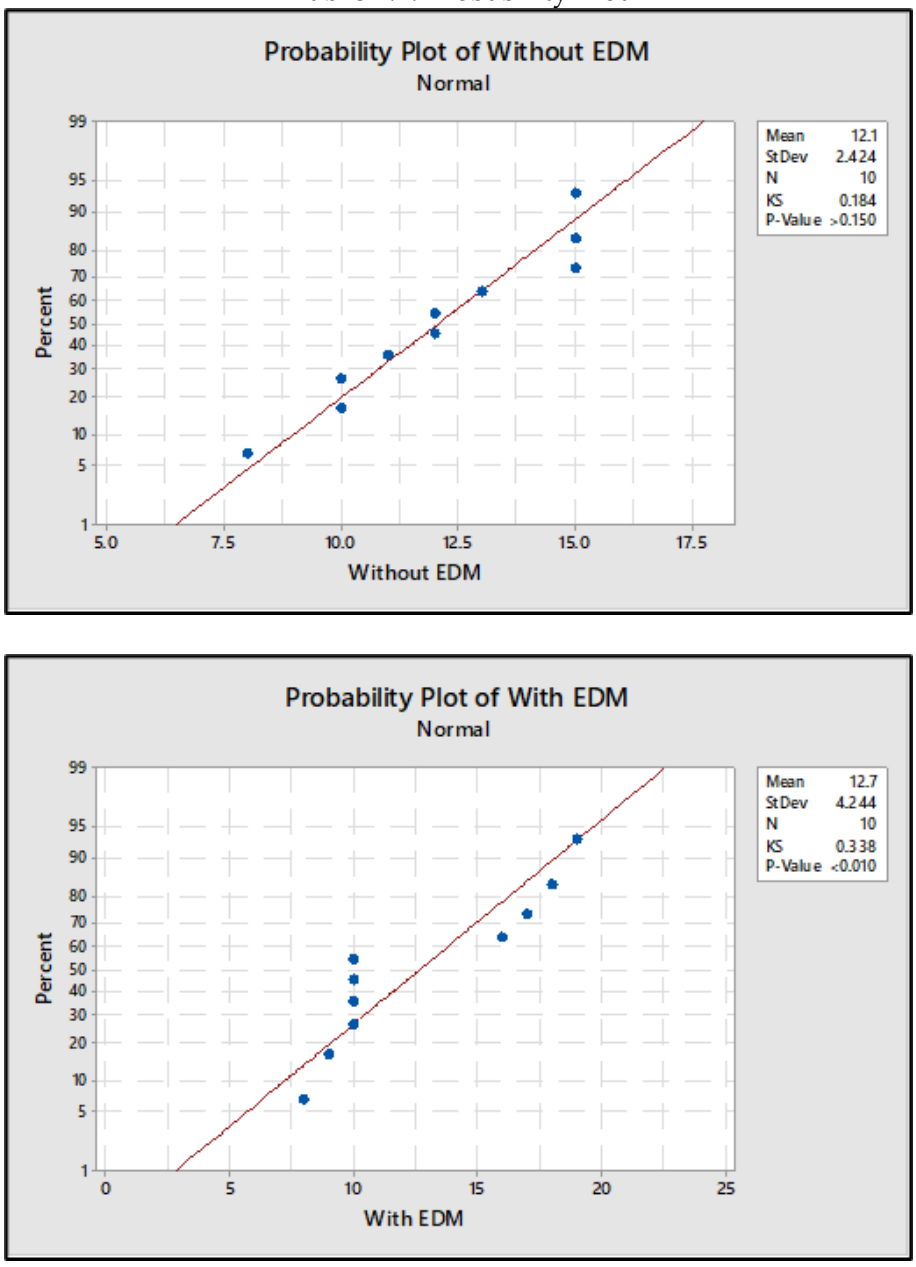
Tables 4.1 to 4.3 show the tally of computations and interpretations of t-test scores using the EDM and without using EDM in Don Vicente Rama Memorial National High School.

Table 4.1: Basic Statistics of Pretest-Posttest

Scores	Without EDM	Pre-test		With EDM	Post Test	
	f	%	Interpretation	f	%	Interpretation
17-19	0	0	Very Good	3	30	Very good
14-16	3	30	Good	1	10	Good
11-13	3	30	Fair	0	0	Fair
8-10	4	40	Poor	6	60	Poor

Table 4.1 shows the performance level of grade 10 of Don Vicente Rama Memorial National high school using without EDM and with EDM music while answering the standard questionnaire. In the pretest, the respondents will answer without EDM music, and for the post-test, the respondents will answer with EDM music. Also, the respondents prefer answering with EDM than without EDM music. Therefore, most of the respondents got higher scores with EDM, but when the researchers applied without EDM music, the respondents got poor scores. Moreover, the learners understand more by answering with the music.

Table 4.2: Probability Plot



Notes: Smirnov-Kolmogorov Test of "Without EDM" or pretest: Data is normal;
Smirnov-Kolmogorov Test of "With EDzM" or post-test: Data is not normal

Table 4.2 shows the result of the normality test of Smirnov-Kolmogorov. The results distribution and computation on the difference of cognitive effects with or without EDM music to be used in improving their cognitive aspects of learning. However, the researchers figured out that the data sets were not normally distributed. The researchers proceed to a box-cox plot to treat the data.

Table 4.3: Box-Cox of Without EDM and With EDM

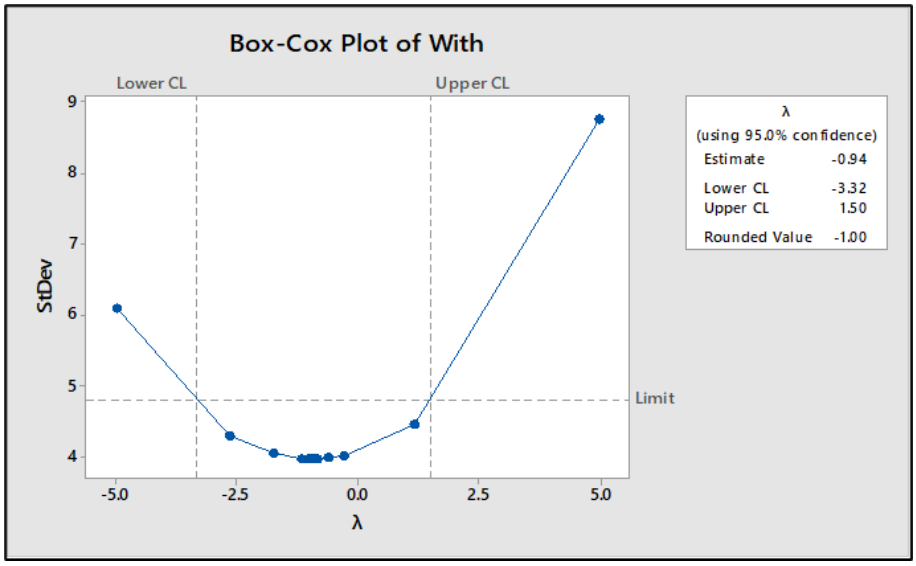


Table 4.3 shows the gathered data on the cognitive effects of electronic dance music on auditory learners as an assessment assessing the learners with EDM and without EDM has the P-value of 0.000, which explains the scores of the learners are effective and improved when listening to EDM while answering. As an implication, using electronic dance music in aiding the students improve their cognitive aspects over without using electronic dance music.

Table 4.4: Paired T-Test and CI: With EDM, Without EDM

N	Mean	StDev	SE	Mean
Without	10	12.100	2.42	0.767
With (1)	10	0.087	0.026	0.008
Difference	10	12.013	2.432	0.769

95% CI for mean difference: (10.273, 13.754)
T-Test of mean difference = 0 (vs ≠ 0): T-Value = 15.62; P-Value = 0.0

Based on the result of paired T-Test with a confidence interval of EDM and without EDM of respondents. It is highly noted that the respondents who answered the test with EDM had a higher mean compared to students without EDM with a T- the value of 15.62. But with, a P-value greater than the level of 0.0 level of significance has a big difference between those without EDM and with EDM. Therefore, there is a big improvement if you will apply EDM in answering.

5. Conclusion

The cognitive effects of electronic dance music on auditory learners had an improvement in their cognitive aspects of learning. Thus, it suggests that the teacher practice playing some electronic dance music while studying or answering auditory learners. In today's world, music everything is changing because of technology. Moreover, electronic dance music has positive effects on learners' level of musical competence of learners. The

researchers will provide links about electronic dance music for the teachers to play the downloaded music for activities. The EDM will be playing during classroom activities to enhance students' performance and skills for auditory learners. The researchers provide a set of electronic dance music that is repeated. The purpose of this is to play during classroom activities, study sessions, and examinations.

Conflict of Interest Statement

The authors declare no conflicts of interest.

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