

A study on the effect of music on the academic performance among students

ABSTRACT

For years, various learning techniques are born by each individual to serve their best learning efficiency and most of these techniques are to deal with noise from the outside environment or to enhance their focus. Study places such as libraries or classrooms usually cannot serve any suitable soundtrack since each individual has a unique taste of music or absolute silence. For those who choose to listen to music, in any type, music(or soundtrack) helps them block outside noises and increase their productivity, focus and even creativity. For music to be applied for this purpose, we can either play music at a reasonable volume in the study room, library, classroom or by individuals via headphones, earphones. In this study, we will conduct some initial results about how music has an effect on students at the University of Manitoba and discuss its benefits and explore its limitations.

INTRODUCTION

Many and many methods/techniques have been used to maximize their education outcome, time and resources. In this study, we will discuss the most common thing that is used to increase learner's efficiency: music. Under various genres and with reasonable volume, music is being played using speakers or headphones while people are studying. To be more specific, the Mozart Effect states that listening to music, particularly classical music, makes people smarter. Assuming the above statement is true, we can benefit a lot from just a simple act like this, so we will go into Dr. Gordon Shaw's research in the early 1990s on the brain capacity for spatial reasoning to see the more specific advantages music brings us.

In this research, we will compare and discuss the impact of different study environment with music or without music to student's academic from three department in Faculty of

Science in University of Manitoba. The experience of each students will be described to see the relationship between music and academic performance.

METHODOLOGY

The study was conducted to examine and evaluate the effect of music on students in University of Manitoba. The purpose of this research is to see how well the result is in the final exam with music or without music while studying in Science students.

In the first two weeks, music will be played in the class while students are studying. There are 2 kinds of music that will be played: regular music (Pop, Jazz, Rock) in the first week and classical music in the second week. After each week, a test contributes to examine what knowledge that student learned. In the third week, students will study in a big room without music. A test will be used as the evaluation of study quality after that week. The score after each week will be scored to compare the correlation between music and academic performance. At the end of the third week, students will give a seven-question survey with the researcher created questions about whether or not they felt that background music helps them to focus.

A survey was taken randomly of 93 students from the statistics department (31), computer science department (31) and chemistry department (31) in the faculty of science. The survey will have 2 parts. First part will contain some questions about the kind of music and the frequency of listening to music. The second part will contain the efficiency of music on academic performance. In order to keep the respect confidentiality and confidence level when answering the question, the student's name will be filled. A class and department will be recorded instead of as a reference.

DICUSSION OF RESULT

- Identify the different effects of music on the academic performance of students:

Table A. Survey about the frequency of listening to music from Science's Student

	Computer Science	Chemistry	Statistic
1) How frequently do you listen to music?			
A) Always	30.11%	29.03%	29.03%
B) Usually	36.56%	32.26%	41.94%
C) Often	25.81%	32.26%	25.81%

D) Never	7.53%	6.45%	3.22%
2) What time a day do you study? A) Morning B) Afternoon C) Evening	20.43% 32.26% 47.31%	19.35% 38.71% 41.94%	29.03% 25.81% 45.16%
3) What kind of music do you usually listen? A) Jazz B) Pop C) Classical Music D) None of above	19.36% 29.03% 38.71% 9.68%	9.68% 25.81% 54.84% 9.67%	22.58% 41.94% 29.03% 6.45%
4) When do you listen to music? A) Doing homework B) Studying for test C) Relax	64.52% 9.68% 25.8%	77.42% 6.45% 16.13%	64.52% 6.45% 29.03%
5) Music increase efficiency of study: A) Strongly agree B) Agree C) Disagree D) Strongly Disagree	40.86% 36.56% 20.43% 2.15%	35.48% 38.71% 22.58% 3.23%	45.16% 38.71% 12.9% 3.23%
6) How does music affect your learning? A) Help study longer B) More difficult to study C) Don't affect	60.21% 21.51% 18.28%	61.3% 19.35% 19.35%	67.74% 22.58% 9.68%
7) Would you preferred music while studying? A) Yes B) No	72.04% 27.96%	64.53% 35.49%	77.42% 22.58%

In the response to the four first questions in the survey about the background of music, 19.36% students from three departments usually listen to Jazz music whereas 29.03% choose Pop as a kind of music they do listen to. Moreover, there is Approximately 38.71 students prefer listening to classical music while 9.68% of students said that they do not listen to the kind of music above. Most of the students from three departments always (30.11%) or usually (36.56%) listen to music while studying but 9.68 % of students responded that they do not do it. The survey reported that major students (more than 64.52%) need music when they study but someone just uses it for relaxing (25.8%).

The purpose of the next part's survey is to look for the efficiency of music to academic performance. The result of the survey showed that 72.04 % of students from computer science or chemistry or statistics department preferred music when learning and only 1/3 students (27.96%) did not like it. Therefore, the biggest proportion of students (60.21%) pointed out that music makes them study longer and have a good effect on their academics and almost 19% of students said that it does not affect their study. Furthermore, table A also showed that a majority of students (77.42%) agree that music literally increases the interest of learning and a minority of them (approximately 23%) oppose it.

- Compare if there is significant difference between the type of music they listen and the academic performance of students:

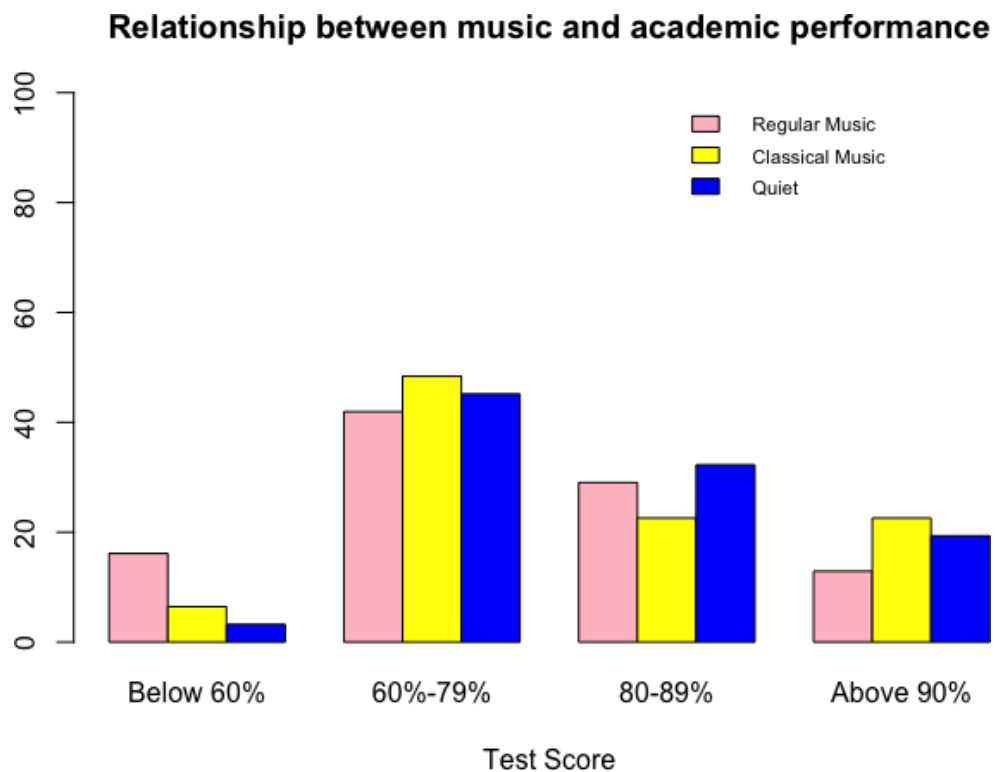
Table B. Grade after test conducted.

Score	First Test Score (Regular Music)	Second Test Score (Classical Music)	Third Test Score (Quiet)
Below 60%	16.13%	6.45%	3.23%
60%-79%	41.94%	48.39%	45.16%
80%-89%	29.03%	22.58%	32.26%
90%-100%	12.9%	22.58%	19.35%

A test is conducted to evaluate the impact of music on academic performance and also determine the correlation between the improvement of quality of study and music. According to table B, in the first week when the regular music is used as the first test, 16.13% of students get the score below 60%, almost 71% of students got between 60-89% while only 12.9% reported that they got a score above 90%. When student listen

to classical music while studying, the percentage of students who got scores below 60% decreased (only 6.45%), the number of students who got high scores increased as well (above 90% increase almost 10%). Some students do not like listening to music when they study that why the quiet environment is the last option chosen to test. The proportion of students had score below 60% is small (just 3.23%), the number of students scoring between 61 to 89% is much higher than the number of students scoring below 60% (as 24 times) and 19.35% of students had above 90%.

- *An association between the effect of music and the academic performance of students:*



Depend on the bar graph, the number of students who got test core below 60% decrease twice a and students who got 60-79%, above 90% increase when they listened to classical music or quiet instead of regular music. For students got low score (below 60%), the proportion of quiet environment/classical is less than regular music but for student got higher score it higher. It shown that classical music or a quiet environment is an option of lots foe students to increase the efficiency of students. Improving score is also an evidence

to prove that there is a positive relationship between classical music/quiet and academic performance.

There are 21 students who said that listen to music while study will disrupt their study (with $t=10.338$, $p\text{-value}<2.2e-16$). It makes them cannot focus on their learning. Otherwise, there are 68 students have the opposite opinions. They think music improves their interest in the study. And 7 students said that kind of music does not impact their academics.

The average number of students strongly agree or agree that kind of music effect on their academic achievement increase after they did the testing. First of all, there are 38 students said that they think study while playing music with gentle rhythm or quiet will increase the efficiency of study and have a better marks. The analysis shown that the rating response registered $t=3.8512$ and $p\text{-value}=0.0001085$, we have sufficient evidence to conclude that there are more than 38 students have better score at 5% level of significance.

Table C. The response and analysis of student's feedback

Question	Number of student response	Test Statistic
Do music disrupt the study? A. Agree B. Disagree C. N/A	21 68 7	$t= 10.338$, $p\text{-value} < 2.2e-16$
Music will increase the efficiency of study.	38	$t=3.8512$, $p\text{-value} = 0.0001085$

SUMMARY OF RESULTS

This study figures out the relationship between music and academic performance. There are three different types of music that we try to compare. Although there are many opinions about the impact of them, this research showed that classical music/quiet is significant efficiency to student's study. It helps some student study longer, or make students more focus on their learning. Kind of music is not the main cause that improves academic, but it is as catalysts in our daily life will help each individual have a clear and relaxed mind to better impact to their study and increase their interest in academic.

CHALLENGES

There is some factor effect on student's option. Some students choose kind of music depends on their hobby or their mood on that day. That is the reason why it is exact fully 100 percentage. Different student want to have a quiet environment to have full concentration on their study, nothing can be interrupted their learning. Because each individually has a different situation, have different base academic, it leads to not entirely objective results.

After conducting the survey, although there is a different impact of music on academic, it only between regular music and classical music/silence. Students prefer kind of music with slow melody, non-lyrical music than lyrical music with playful tempo. However, the difference of impact between classical music and silence environment is not much. the difference in the proportion of scores is not big enough to conclude that what the best impact on academic performance is.

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APPENDIX

TABLE A. Number of students in a specific department in the survey of the frequency of listening to music.

Questions Department	Computer Science	Chemistry	Statistics
1) How frequently do you listen to music? A) Always B) Usually C) Often D) Never	10 11 6 4	9 10 10 2	9 13 8 1
2) What time a day do you study? A) Morning B) Afternoon C) Evening	4 10 17	6 12 13	9 8 14
3) What kind of music do you usually listen? A) Jazz B) Pop C) Classical Music D) None of above	8 6 13 4	3 8 17 3	7 13 9 2
4) When do you listen to music? A) Doing homework B) Studying for test C) Relax	16 5 10	24 2 5	20 2 9
5) Music increase efficiency of study: A) Strongly agree B) Agree C) Disagree D) Strongly Disagree	13 10 8 0	11 12 7 1	14 12 4 1
6) How does music affect your learning? A) Help study longer B) More difficult to study C) Don't affect	16 7 8	19 6 6	21 7 3
7) Would you preferred music while studying? A) Yes	23	20	24

B) No	8	11	7
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Table B. Number of student in three department in different level of grade

Score	Department	First Test Score	Second Test Score	Third Test Score
Below 60%	Computer	5	2	1
	Science	3	2	2
	Chemistry	4	2	3
	Statistics			
61%-79%	Computer	13	15	14
	Science	17	15	16
	Chemistry	11	13	14
	Statistics			
80%-89%	Computer	9	7	10
	Science	11	13	11
	Chemistry	13	11	12
	Statistics			
Above 90%	Computer	4	7	6
	Science	0	1	2
	Chemistry	3	5	2
	Statistics			