

The Effect of background Music on Reading Comprehension Regarding Extroverts / Introverts Personality Dimensions

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Abstract: *The researcher in this study intends to focus not only on the effect of music on reading but also on the effects of music on extroverts – introverts personality dimensions. The main question this study tried to answer was whether listening to music as a background might enhance students' reading scores. A total of 68 language learners from Ereshk educational group participated voluntarily in this study. They were selected out of 83 students, employing Nelson proficiency test and were randomly assigned to two groups. Before distributing the tests, Fog index was calculated to determine the readability of the texts. The texts were at upper- intermediate level. The participants in experimental group were asked to read three texts accompanying by music background, but the subjects in the control group were asked to read the same texts without background music during three sessions. To see if there is a significant difference between the reading scores of the two groups, Independent Samples t-test was run. Statistical analysis was applied for the effect size, Mauchly's Test of Sphericity and one-way repeated measure ANOVA. At the end, Pearson correlation coefficient showed the relationship between scores of students' performance and scores of introversion- extroversion scale. The results of the present study indicated that background music has the potential as a facilitator not as a distraction to be used as an effective aid for reading classes.*

Keywords: *Background music, Classical music, Extroversion, Introversion, Reading comprehension*

1. Introduction

Many students prefer to listen to music while studying because they believe it helps them to focus on their work. Others feel that music is a distraction. The way in which a student chooses to study determines how well they do in school. Reading comprehension is the process of making meaning from text. The goal, therefore, is to gain an overall understanding of what is described in the text rather than to obtain meaning from isolated words or sentences. Music is powerful and like all other art forms; it is unique to human beings. Because of the profound effects music has on the human race, it has been a common link between cultures around the world for centuries. The power of music holds a strong influence over many human functions. It has the potential to evoke emotions. It expresses emotion shared by all cultures, closes the gap between eras of time, and reflects attitudes and progression.

The quality of reading comprehension is very important. All we know reading comprehension is not just the ability to read text, process it and understand its meaning rather, its outstanding feature resides in the fact that it should result in communication, conveying emotions, cultures and beliefs. Then, reading comprehension can be viewed as an important and meaningful activity. Quiet recently considerable attention has been paid to music. Psychologists and scientists have been looking at the link between music with mood, work efficiency and concentration for years.

Instructors are realizing that they need to use various strategies and resources to enhance the program of study and learning of the students. One of the low cost specific strategies now commonly used in developed countries to supplement student learning is the use of background music. Survey of literature indicates that there is no directly relevant experimental or descriptive research on background music effects on reading quality. Most of literature on music therapy is general and do not pay attention to the researcher's particular interest in the field of reading comprehension.

This study was designed to investigate the extent to which background music would affect reading scores with attention to different personality traits (i.e. extroversion and introversion). Although there are an extensive amount of researches in reading studies field, however to the researcher's information, very few investigations have done in this area and hardly any of them offer a solution to overcome readers anxiety and motiveless during reading task. Beside there is a considerable lack of research into the relationship between individual differences (extroversion degree) and reading quality with the presence of an additional factor.

In order to find the relation between music and the degree of reading comprehension quality in different personality types; the present study employed both qualitative and quantitative methods and aimed at:

- Examining the difference between students' reading comprehension scores and their exposure to music.
- Probing whether there is any change in students' scores across the three time periods of using background music.
- Exploring whether there is any significant relationship between students' scores from introversion-extroversion scale and their reading comprehension performance accompanying by background music.

2. Review of Literature

The activity of reading comprehension has a long-standing tradition and has been widely practiced throughout history, but in our rapidly changing world its role has become of paramount importance. Nowadays, knowledge in which cultural exchanges have been widening, has been increasingly expanding and international communication has been intensifying, the phenomenon of reading comprehension has become fundamental. Be it for scientific, medical, technological, commercial, legal, cultural or literary purposes, today human communication depends heavily on reading and, consequently, interest in the field is highly growing (El-dali, 2011, pp. 29-30).

The ability to perceive emotion in music is said to develop early in childhood, and improve significantly throughout development (Dowling, 2009). Different people perceive events differently based upon their individual characteristics. Similarly, the emotions elicited by listening to different types of music seem to be affected by factors such as personality and previous musical training (Schellenberg and Mankarious, 2012).

Music is an important part of people's lives. It has been the topic of conversation in education for decades. It helps to relieve stress, motivate learning, and can create a feeling of a safe environment. Using music can connect neurons with other parts of the brain. Learning through music may be very effective because it stimulates the brain while it is processing information (Brown and Brown, 2008). Using classical music as a tool may help students retain much needed information.

Listening to music prior to a lesson being taught may be a facilitator for better learning. Along with this, listening to music throughout the day enriches the learning environment. Music acts as a memory aid for making learning information easier (Thares, 2010). According to Lozanov and others, we may be using only five to ten percent of our mental capacity. In order to make better use of our reserved capacity, the limitations need to be suggested. Suggestion has been developed to help students eliminate the feeling that they cannot be successful or the negative feeling. One of the ways the students' mental reserves are stimulated is through integration of the background music (Larsen freeman, 2000).

A study on math lesson showed that elementary school students who listened to moodcalming music while completing mathematical problems were able to complete more problems and solve a higher percentage of them correctly than the group who listened to no music at all (Hallam, 2002). However Cox (1981) reported that classical music used during relaxation therapy had no statistically significant effect on algebra scores (cited in Manthei and Kelly, 2006).

Some researchers surveyed the relation between music and reading comprehension. A study done by Lewis suggests that listening to classical music may help improve reading comprehension as well as other reading skills. He conducted a six-week study with first graders and found that listening to classical music seemed to have made a substantial difference in the reading comprehension levels and letter or sound recognition of these students. When classical music was played during reading lessons, the children seemed to be more attentive to the lessons which may have played a role in better retention of the material taught (Lewis, 2002).

Williams (1961) reported that classical music had no effect on reading comprehension while Mammarella, Fairfield, and Cornoldi (2007) demonstrated that digit span and phonemic fluency tasks were better performed in the presence of Vivaldi (Italian violinist and composer) than in silence (cited in Reynold, et al., 2014, p. 411).

A research on lyrical music by Liapis, Giddens and Uhlenbrok (2008) tested the impacts of lyrical and non-lyrical music on reading comprehension. Participants were divided into two groups and each group was asked to read the same article under two different musical conditions, one while listening to a song with lyrics (lyrical condition) and the other while listening to the same song without lyrics (non-lyrical condition). Results showed that participants in the non-lyrical condition had better scores. In a similar study, Furnham and Allass compared the effects of background music with and without lyrics, and found instrumental music can improve the reading comprehension performance of listeners, whereas songs with lyrics tend to distract listeners (1999).

A survey was conducted to explore the frequency with which students use background media in self-instructional home study settings, and the perceived effects of students' use of background media on their homework performance. A questionnaire administered to 1,700 students in Grades 8 and 10 asked students to indicate how often they perform different types of homework assignments and how often they incorporate different types of background media while doing them. In addition, students indicated how they divide their attention between homework assignments and background media, and how they perceive the effects that media may have on their performance on different types of homework assignments.

Results indicated that the frequency with which students reportedly combined homework and media depended on the type of school work (learning assignments versus paper and pencil assignments), type of background medium (audio media or TV), and the students' level of secondary education. In general, students felt that their performance on learning assignments was impaired by the use of background media.

3. Methodology

Since the focus of the present study was to explore music effect on reading comprehension task, this study adopted both quantitative and qualitative approaches to examine and analyze the data since a mixed method would yield more fruitful and in-depth findings. In so doing, the study was mainly experimental since it divided the participants into two experimental and control groups. In the quantitative phase researcher used some statistical formulas such as Independent sample T-test, Pearson Correlation coefficient, repeated measure ANOVA. to examine the two major variables (introversion-extroversion and reading performance). Moreover, in the qualitative phase the study using semi-structured interview tried to explore students' reaction towards reading comprehension quality assessment and the influence of background music on the quality of their reading.

3.1. Participants

Initially, a pool of 83 students majoring in reading comprehension studies participated in the study, out of which 15 were ignored by the researcher since their scores on the Nelson Proficiency test were not between one standard deviation above and below the mean.

Participants of the study were both male and female EFL students who were studying English complete IELTS Bands 5-6.5 at ERESK Educational Group in Tehran. All students were from English department and their mother tongue was Persian. Their age range from 24-33 and the mean age was 28.5. The classes were mixed and consisted of 30 male and 38 female.

3.2. Data Collection Procedure

At first permission from college was obtained in order to broadcast the music in classes. Then Nelson TOEFL test administrated on the whole population. Among 83 students, a total of 68 students confirmed the sample homogeneity and have chosen as a final sample.

Next, the students were randomly divided into two groups; one control group and one experimental group. Control group read three texts in three sessions under silence condition. As this study is an attempt to address the issue of background music effect on reading task; in similar condition except for background music; the experimental group read three texts with the same difficulty level in three sessions; but this time they receive music. It should mention that the time allowed for reading is 20 minutes and the lengths of the texts are the same. The background music was played from the laptop with additional speakers which were placed in the front of the classroom and maintained at constant volume during reading task.

The study took place within two three-week periods during the months of November – December. In the first three-week period the researcher collected control group data in non-music condition. In the second three-week part, the experimental group papers which read under background music were gathered. After the reading texts collected, the researcher assessed them based on meaning oriented criteria and these scores used for analysis. In order for the students not aware of the purpose of the study, after finishing the reading project; the researcher chose six students randomly and interview with them in order to elicit their emotion, feeling and reaction during survey. This interview recorded on a tape and then transcribed.

3.3. Data Analysis

In order to find the effect of background music on reading quality; the data analysis of the current study follows a straightforward statistical analysis. To evaluate and value the students' reading, the researcher used Kim's assessment criteria as the objective criteria. He subtracted from 45, the full mark for each reading on the NAATI reading exam. Based on Kim's criteria, a range of deductions in points was suggested. The deduction

was in relation to the scales, such as 1–2, 1–3, and 3–5, based on an analysis of points deducted in reading examinations graded by the graders for errors on reading comprehension. The deduction of points was done based on major errors that influence one or more aspects of meaning and minor errors that are simple mistakes that have little impact on the delivery of Source Text meaning.

4. Results and Discussion

The researcher used the most commonly valid test of English proficiency to homogenize the sample in terms of their level of proficiency. In so doing, the researcher just included those students whose scores on language proficiency test used in this study fell one standard deviation below or above the mean.

Table 1.

The mean and standard deviation of students' scores on Proficiency test

	N	Minimum	Maximum	Mean	Std. Deviation
Scores on Proficiency	68	28	44	36.19	6.53
Valid N	68				

4.1. Pre-test between two groups:

The researcher just kept 68 of the participants since their scores were between 22 and 34 were included in the study. Table 2 represents the mean and standard deviation for control group ($M=25.18$, $SD= 4.07$) and experimental group ($M=25.54$, $SD=4.36$). The total number of students participated in the study was 83.

Table 2.

Mean and standard deviation of the two groups before treatment

Groups	N	Mean	Std. Deviation	Std. Error Mean
Pre-test	Control	34	25.18	4.07
	Experimental	34	25.54	4.36

Independent Sample T-test offers two lines as displayed by Table 3. With reference to this table, the Sig. value is larger than .05, therefore, the first line should be followed which refers to Equal variances assumed. That is to say, since in this table, the significant value is .102 which is larger than .05; the first line is used to report findings. To see if there is a significant difference between the two groups, having checked the column labeled Sig. (2-tailed), and the researcher discovered there is no significant difference in the mean scores on the dependent variable for each of the two groups. Because the value in the Sig. (2-tailed) column is above .05 (which is .524), there is no significant difference between the two groups before the treatment phase.

Table 3.

Independent samples T-test for the two groups before treatment

Pre-Test		Levene's Test for Equality of Variances	t-test for Equality of Means								
			F	Sig.	T	Df	Sig (2-tailed)	Mean Difference	Std. Error Difference	95% confidence interval of the Difference	
										lower	upper
Equal variances assumed	Equal variances not assumed	2.65	.102	-.749	38	.524	-1.311	1.612	-4.636	2.134	
				-.735	34	.410	-1.311	1.612	-4.532	2.112	

4.2. Post-test between two groups

As displayed by Table 4, the mean and standard deviation for each of the groups differ from those of pre-test. The results obtained showed that students at experimental group ($M=31.65$) performed better than the students at control group ($M=25.46$).

Table 4.

Mean and standard deviation of the two groups after using music

Groups		N	Mean	Std. Deviation	Std. Error Mean
Pre-test	Control	34	25.46	5.51	1.75
	Experimental	34	31.65	4.43	0.97

Table 5.

Independent samples T-test of the two groups after treatment

Pre-Test	Equal variances assumed Equal variances not assumed	Levene's Test for Equality of Variances			t-test for Equality of Means					
		F	Sig.	T	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% confidence interval of the Difference	
									lower	upper
		4.51	.039	-2.23	34	.49	-4.234	1.884	-7.763	-.173
				-2.23	28	.45	-4.234	1.884	-7.893	-.056

Since the Sig. value in Table 5 is less than .05 so that the second line is used to report the data, which refers to Equal variances not assumed. To discover if there is a significant difference between the two groups, we refer to the column labeled Sig. (2-tailed). Since the Sig. (2-tailed) value is less than .05 which is .049, then there is a significant difference in the mean scores on the dependent variable for each of the two groups.

4.3. Students' scores from introversion-extroversion scale

As Table 6 shows, the mean score for extroversion-introversion scale is 40 and since individuals scoring above 48 are highly introverted; those scoring below 27 have low introversion (are extraverted) and those scoring between 27 and 51 are in the moderate range, the results indicated that the students are in the moderate range somewhere between introversion and extroversion more towards introversion.

Table 6.

Mean and standard deviation of students' performance and their personality

	N	Minimum	Maximum	Mean	Std. Deviation
Students' performance	34	26	35	31.57	3.43
Extrovert / introvert	34	27	51	40.59	7.23
Valid N (likewise)	34				

After performing the preliminary analysis to ensure no violation of the assumptions of normality, the results obtained from Pearson product-moment correlation coefficient showed the relationship between scores of students' performance and scores of introversion/extroversion scale (See Table 7). There was a medium, positive correlation between the two variables.

Table 7.

Correlations between students' performance and extrovert/introvert

		Students' performance	Extrovert / introvert
Students' performance	Pearson Correlation sig. (2-tailed)	1	.471
	N	16	34
	Pearson Correlation sig. (2-tailed)	.471	1
Extrovert / introvert	Pearson Correlation sig. (2-tailed)	.047	
	N	34	16

5. Conclusions

Comparison between control group with experimental group confirms this statement by observing increase in experimental group mean scores. They move progressively towards greater accuracy in reading texts and carefully produce natural reading. In this study the author's attention was focused not only on the relation between music and reading but also on the effects of music on extroverts – introverts personality dimensions.

The result of the present study showed consistency with Larsen freeman (2000) that: Lozanov in order to make better use of reserved capacity, provide a relaxed attitude and decrease stress; he eliminate limitation through the integration of the background music into the learning environment. In a similar way the researcher remove negative attitude toward reading act and boost self-esteem through background music, in that anxieties and tension are relieved and power of concentration for reading comprehension was raised.

The findings relate to personality dimension reaction in the presence of outer stimuli such as music, was quite unexpected. In contrast to some reports in the literature (e.g. Furnham and Bradley 1997, Cassidy and MacDonald, 2007, Furnham and Strbac, 2002); which claims that introverts perform worse in noise condition. Based on studies, we conclude that background music has the potential to be used as an effective aid for reading classes, in conditions where the music is prepared carefully with the participant's needs and their favorite; it is not act as a distraction but also acts as a facilitator for better thinking. The most likely explanation of the positive effect of music is in line with previous studies indicating that background music can raise memory capacity, enhance self-esteem, enhance cognitive abilities (Hall, 1952) stir up emotions (Anderson, 2000), helps to reduce stress and enhance willingness to learning (Davies, 2000 cited in Lewis, 2002).

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