

The Impact of Mozart Music on Translator Students' Performance and its Relationship with Students' Extraversion or Introversion Personality Traits

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Abstract

The present research aimed to investigate the effect of background Mozart Classical music on translator students' performance. In this study, the researchers focused not only on the relationship between music and translation but also on the relationship between music and personality traits. The main question this study tried to answer was whether using background music might enhance students' translation scores. To answer this question, 32 students from Islamic Azad University of Quchan, Iran, participated in this study. They were selected out of 40 students, employing Nelson proficiency test and were randomly assigned to two groups. The participants in experimental group were asked to translate three texts accompanied by background music, but the subjects in the control group were asked to translate the same texts without background music during three sessions. Students' translations were scored based on Kim's (2009) meaning-oriented translation assessment model. Statistical analyses were applied for qualitative data and an interview was designed for the qualitative research question. Researchers concluded that there was a significant difference between the translation scores of the experimental and control groups. The former outperformed the latter group on the translation task.

Keywords: Mozart Music, Extroversion, Introversion, Translation

Introduction

The present study, as an interdisciplinary work, makes a connection between art and translation. Translation is a phenomenon that has a huge effect on everyday life. It is an incredibly broad notion, which can be understood in many different ways. For example, while some may talk of translation as a process (the act of producing the translation), others would consider it as a product (the text that has been translated) (Hatim& Munday, 2004). It is not just viewed as an activity of changing a piece of text from one language to another; rather throughout history, written and spoken translations have played a crucial role in inter human communication, at slightest in providing access to important texts for scholarship and religious purposes.

Meanwhile, music has profound effects 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 emotions shared by all cultures, closes the gap between eras of time, and reflects attitudes and progression(McDonald, 2013).Therefore,in the present study, the researchers aimed to combine music with translation.

Translation is an important activity, but it is a boring task and does not stimulate students' motivation. The students at Islamic Azad University of Quchan in literarytranslation classes felt stress and anxiety during translation projects;consequently,they producedunqualified translated texts. Moreover, the students complained about cheerless situation in literary translation classes. In this condition, the researchers set out to find a way to improve this situation by the help of music, since many students listen to it in order to alleviate the emotional effects of stress and anxiety when engaged in complex cognitive processing. According to emotivist theory, music is both a cause and an effect of feeling. In perceiving music, we react to it affectively. Emotivists are persuaded that the direct arousal of emotion, such as being surprised, disturbed, satisfied, relaxed etc. by themusic, is a clue to its emotional expressiveness (Ushedo, 2006).

The relationship between music and learning has been an interesting subject for researchers for many years. Some studies have shown that music

can enhance cognitive abilities (Hall, 1952). Yoon (2000) states that life would be very humdrum without music because music is a natural part of people's life, and it influences their thoughts, feelings, and ways of interacting with themselves and others (as cited in Lewis, 2002). Also on the benefits of music, Anderson (2000) declares music can make learning more focused and effective, it can help us focus on the task, can calm nerves, stir up emotions, and create a feeling such as happiness. In addition, music creates a memorable and enjoyable climate conducive to learning (as cited in Lewis, 2002).

In recent years, researchers have paid a considerable attention to the effects of background music on the cognitive task performance of introverts and extraverts. For instance, Dobbs, Furnham, and McClelland (2011) illustrated how introverts performed less well on a number of tasks than extraverts in the presence of background noise and music but in silence performance was the same (as cited in Reynold, McClelland & Furnham, 2014).

Instructors were searching for ways in order to motivate students and promote teaching quality. One of the low cost specific strategies now commonly used in developed countries to supplement student learning is the use of background music.

Researchers have found that using music in the background of instruction or during task performance has many benefits in the classroom. White (2007), in a research on fourth grade students in Colombia, concluded that music has a strong influence on today's youth and improves their productivity, behavior, and motivation.

Music is an important part of people's lives. It has been the topic of interest in education for decades. It helps to relieve stress, motivate learning, and 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 & Brown, 2008).

The structural features of music not only help convey an emotional message to the listener, but also may create emotion in the listener (Scherer and Zentner, 2001). These emotions can be completely new feelings or may be an extension of previous emotional events. Precedent listening

experience is particularly significant in either suppressing or facilitating the tendency of the qualities of the music to arouse the corresponding emotion (Ushedo, 2006). For example, MacInnis and Park (1991) stressed that a good fit between music and the advertisement had a strong impact on positive emotional response and attitude to the advertisement (as cited in Morris & Boone, 1998). In this regard, a musical element can become emotionally expressive by virtue of some learnt custom or convention of association (Ushedo, 2006).

According to Acoustical Society of America (2000), complete quietness is nearly impossible to achieve since the sounds of construction and other natural and artificial environmental noises invade almost every aspect of the life. Therefore, the effect of certain type of music, especially Mozart, can be beneficial in reducing the distracting noises (as cited in Karimnia & Sadeghzade Lari, 2012).

In recent years, many studies have been conducted on the effects of classical music on learning. Jamali Kivi, Pourhasan Moghaddam, and Pourkalthor (2013) conducted a study to see if the Mozart Sonata had any effect on speaking proficiency of Iranian EFL learners. 64 students from Shokoh institute of Tonekabon, Iran were selected. They were randomly assigned to four groups. Two experimental groups were taught and tested speaking patterns in a music background, but the subjects in the control groups were taught and tested in no music background over a period of two months. A t-test was run to see if there were any significant differences between the speaking proficiency of groups in different conditions. The results indicated that there was a significant difference between the speaking performance of the music groups and the non-music groups and the music groups outperformed the non-music groups on the speaking test.

In another study on Taiwanese college students, by Chou (2010), the results showed that the participants who were listening to Mozart's classical music while attending to the reading comprehension task would perform better than the control group which had no background music or the group with hip hop music in the background.

In the past, the translated texts used to be analyzed and measured subjectively in translation assessment. However, recently, objective

approaches have been favored by the professionals in translation to assess the translated texts at the levels of word, sentence, and discourse. To assess the quality of a translation, one should employ the intended theories of translation embedded in the nature of translation or, more specifically, the nature of the relationship between ST and TT (House, 2001). Many professionals and scholars try to build and develop their models as a yardstick for evaluation of a TT. Therefore, gradually the emergent need of TQA was felt in translation practice.

The authors proposed Kim's (2009) meaning oriented assessment rubric (Figure 1). This model is not only derived from Hallidayan systemic-functional theory but also could evaluate the text at the macro-level including experiential, logical, interpersonal, and textual levels. A distinctive meaning is construed through three different kinds of meanings: ideational, which includes both experiential and logical resources, interpersonal, and textual. Experiential meaning represents our experience of the world. Logical meaning refers to logical relations between the experiences. Interpersonal meaning expresses interaction and the relationship between the speaker and the listener or a personal attitude. Textual meaning organizes ideational and interpersonal meanings into a coherent linear whole as a flow of information (Angeleli & Jokobson, 2009).

			Lexis	Clause	Text
Major	<i>Experiential</i>	Accuracy	1-2 pts	2-3 pts	
		Naturalness	1-2 pts	2-3 pts	
	<i>Logical</i>	Accuracy		1-3 pts	
		Naturalness		1-3 pts	
	<i>Interpersonal</i>	Accuracy	1-2 pts		3-5 pts
	<i>Textual</i>	Accuracy	1-2 pts		3-5 pts
Naturalness		1-2 pts		3-5 pts	
Minor	<i>Graphological mistakes such as spelling</i>			0.5	
	<i>Minor grammar mistakes that do not impact meaning</i>			0.5	

Figure 1.
Meaning-oriented assessment criteria (Adopted from Angelelli & Jakobson, 2009, p.136)

Personality is said to consist of some internal factors or elements known as personality traits. A trait can be defined as "a dimension of personality used to categorize people according to the degree to which they manifest a particular characteristic" (Maltby, Day, & Macaskill, 2010, p. 157). The researcher proposed detailed descriptions of the two traits, which very precisely capture the major differences between introverts and extroverts.

According to Eysenck, "the typical extrovert is sociable, like parties, has many friends, craves excitement, acts on the spur of the moment, and is impulsive" (Pervin & John, 1997, pp. 234-235). "In contrary to extroversion, the introverted person tends to be quiet, introspective, reserved, reflective, and distrustful of impulsive decisions and prefers a well- oriented life to one filled with chance and risk" (Pervin & John, 1997, pp. 234-235). Introversion is "the extent to which a person derives a sense of wholeness and fulfillment apart from a reflection of this self from other people. Introverts can have an inner strength of character in contrary to extroverts"(Brown, 2007, pp. 166-167).

A study conducted by Furnham and Bradley (1997) examined whether the level of extroversion moderates cognitive task performance under background auditory stimuli and found significant results. In this study, 10 extroverts and 10 introverts completed three cognitive tasks: reading comprehension, memory, and delayed memory. Introverts performed significantly worse than extroverts with background music in the delayed recall task. While not statistically significant, introverts also generally performed worse in the other two tasks. The facilitative nature of music is not supported by these findings, suggesting that specific personality types predispose individuals to perform differently under certain music conditions. Interestingly, this study revealed some evidence that overall background noise, such as [television](#), music, and chatter could improve performance in complex cognitive tasks for extroverts, although it will significantly impair introverts' performance.

Although there was an extensive amount of research in translation studies field, to the best of researchers' knowledge, very few studies have investigated the relationship between translation and music and hardly any of them has focused on personality traits. This study was designed to investigate the extent to which background music would affect translation scores and how introverts or extroverts react in musically-supported condition.

This study adopted both quantitative and qualitative approaches to examine and analyze the data.

1. Is there any significance difference between participants' mean scores on translation task due to the use of background Mozart music?
2. Is there any significant relationship between students' scores from introversion- extroversion scale and their translation performance accompanied by background music?
3. How do students react to using music as background in translation classes?

Method

Participants

Initially, a pool of 40 students majoring in translation studies participated in the study, out of which eight were ignored by the researchers

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 in English Translation studies at Islamic Azad University of Quchan branch. All students were from English department and their mother tongue was Persian. Their age ranged from 19-27 and the mean age was 23. The classes were mixed and consisted of 15 male and 25 female students. The corpus of the study consisted of a reading book written by ArlineBurgmeier with intermediate difficulty level.

Instrumentation

The first instrument was Nelson Proficiency Test with 50 multiple-choice questions in order to homogenize students' English proficiency level. The second instrument was *Inside Reading*, a book written by ArlineBurgmeier, which was suitable for intermediate learners. Three texts were chosen from units 4, 6, and 7 to be translated by experimental and control group participants. Each text had approximately 200 words. The third instrument was an eighteen- item questionnaire in order to understand the degree of introversion; this introversion scale was developed by McCroskey. The correlations of this measure with the PRCA-24 have been around 0.30. Alpha reliability estimates have been above 0.80. Items to measure neuroticism are used as filler items and are not scored with the introversion items. To determine a person's introversion degree, individuals scoring above 48 were considered highly introvert; those scoring below 24 were considered extrovert. It should be mentioned that English statements were translated into Persian so that students could answer the questions faster. The last instrument used was a semi-structured interview. As for the interview purposes, six learners from the experimental group were randomly selected for interview in face-to-face interaction with the researchers. Semi-structured interviews were used to collect the qualitative data (Dörnyei, 2007).

Data collection procedure

Nelson test was administrated to the whole population. Among 40 students, a total of 32 students confirmed the sample homogeneity and were chosen as the final sample. Next, the students were randomly divided into two groups, one control group, and one experimental group. Control group translated three texts in three sessions under silence condition. As this study was an attempt to address the issue of background music effect on translation task; the experimental group translated three texts with the same difficulty level in three sessions; but this time they receive Mozart classical music. It should mention that the time allowed for translating was 20 minutes and the lengths of the texts were the same. The background music was played from the laptop with additional speakers that were placed in front of the classroom and maintained at constant volume during translation task.

The study took place within two three-week periods during November and December. In the first three-week period, the researchers gathered control group data in non-music condition. In the second three-week part, the experimental group papers, which were translated under background music, were gathered. After the translated texts were collected, the researchers assessed the papers based on meaning oriented criteria (Kim, 2009 cited in Angelelli and Jacobson, 2009) in which translation errors are categorized into major and minor errors. These scores were used for analysis. In order for the students not to be aware of the purpose of the study, after they finished their translating project, the researchers chose six students randomly and interviewed them in order to elicit their emotion, feeling and reaction during survey.

Design

As the focus of the present study was to explore the effect of music on translation 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.

Results

In order to find the effect of background music on translation quality, the data analysis of the current study followed a straightforward analysis including two major phases. In the quantitative phase, the researchers used the statistical formula of independent sample T-test, and Pearson correlation coefficient. Moreover, in the qualitative phase, the researchers used a theme-based procedure to categorize students' responses (Dörnyei, 2007). In so doing, the qualitative data that came from the open-ended questions and interviews were analyzed following the general qualitative analysis techniques and specific interview analysis techniques. First, the data that came from open-ended questionnaires were prepared through the theme-based categorization by structuring and classifying. Structuring of complex data was done by transcription. Then, the transcriptions were classified by eliminating repetitions and digressions. Indeed, each interview was recorded by using audiotape, and the researcher took notes during the interview. Finally, the lengthy interview transcriptions were reduced into brief and concise statements that were used to formulate assertions by the interviewees.

Sample Homogeneity

Researchers used the most commonly valid test of English proficiency (Nelson Proficiency Test) to homogenize the participants in terms of their level of proficiency. The highest score obtained by a test taker on this test was 50, one score for each question item.

Table 1

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

	N	Minimum	Maximum	Mean	Std. Deviation
scores on Proficiency test	40	14	42	28.15	7.08
Valid N (listwise)	40				

As displayed in Table 1, the mean was 28 and the standard deviation was 7. The researchers just included those students whose scores on language proficiency test used in this study fell one standard deviation

below and one standard deviation above the mean (i.e., $28 - 7 = 21$ and $28 + 7 = 35$). Thus, the researchers just kept the participants whose scores were between 21 and 35. Among 40 students in the sample, just 32 students were in this range.

Hypothesis Testing

Music and translation scores

For the first quantitative questions, the following hypothesis was formulated:

H₀ 1 - There is not any significant difference between participants' mean scores on translation task and the use of background Mozart music.

Pre-test between two groups:

The authors gave a test before administering music on the sample to measure the standard deviation and mean score of control and experimental group.

Table 2

Mean and standard deviation of the two groups before treatment

	Groups	N	Mean	Std. Deviation	Std. Error Mean
pre-test	Control	16	24.13	5.09	1.31
	Experimental	16	25.33	3.51	.90

Table 2 represents the mean and standard deviation for control group (M=24.13, SD=5.09) and experimental group (M=25.33, SD=3.51). It is obvious that there is not much difference between two groups' scores.

Table 3
Independent samples T-test for the two groups before treatment

		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	
Pre- test	Equal variances assumed	2.72	.110	-.750	28	.459	-1.200	1.599	-4.476	2.076
	Equal variances not assumed			-.750	24.8	.460	-1.200	1.599	-4.494	2.094

As Independent Sample T-test offers two lines and the significance value is larger than .05, the first line that refers to Equal variances assumed was used to report findings.

To see if there is a significant difference between the two groups, the authors checked the column labeled significance (2-tailed). Because the value in the significance (2-tailed) column was above .05, there was no significant difference in the mean scores on the dependent variable between the two groups before the treatment phase.

Post-test between two groups:

A post- test was given to see if there is any change in the standard deviation and mean score of control and experimental group after administrating music on the sample.

Table 4
Mean and standard deviation of the two groups after using music

Groups		N	Mean	Std. Deviation	Std. Error Mean
post- test	Control	16	25.53	6.61	1.70
	Experimental	16	29.75	3.04	.78

As displayed in Table 4, the mean and standard deviation for each of the groups differ from those of pre-test. Comparison of Mean and standard deviation of two groups showed that students at experimental group ($m=29.75$) who received treatment performed better than the students at control group ($m=25.53$).

Table 5
Independent samples T-test of the two groups after treatment

		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	
Post-test	Equal variances assumed	4.68	.039	-2.12	28	.042	-4.000	1.879	-7.849	-.151
	Equal variances not assumed			-2.12	19.68	.046	-4.000	1.879	-7.924	-.076

Music treatment resulted in increase in students' scores (experimental group $m=29.75$ and control group $m=25.53$). This increase was statistically significant (significance value = .04, $p < .05$, two-tailed). Thus, the first null hypothesis of the study was rejected.

The effect size was calculated as 0.13 and it was moderate, following the guidelines proposed by Cohen (1988) for interpreting this value:

.01=small effect,

.06=moderate effect,

.14=large effect.

The result shows that the effect size of .13 is moderate.

Introversiion-extroversion scale and translation performance

For the second quantitative questions, the following hypothesis was formulated:

H₀ 2- There is not any significant relationship between students' scores from introversion-extroversion scale and their translation performance accompanied by background music.

Table 6

Mean and standard deviation of students' performance and their personality

	N	Minimum	Maximum	Mean	Std. Deviation
Students' performance	16	25	33	29.53	3.04
Extrovert/Introvert	16	25	50	38.67	7.01
Valid N (listwise)	16				

The introversion scale which was developed by McCroskey proposed that individuals who score above 48 are highly introvert and those who score below 24 are extrovert. People scoring between 48 and 24 were in the moderate range. As Table 6 shows, the mean score for extroversion-introversion scale is 38 so the students in sample were in the moderate range

Table 7

Correlations

		Students' Performance	Extrovert/ Introvert
Students' Performance	Pearson Correlation	1	.467
	Sig. (2-tailed)		.049
	N	16	16
Extrovert/Introvert	Pearson Correlation	.467	1
	Sig. (2-tailed)	.049	
	N	16	16

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 [$r=.46$, $n=16$, $p<.05$].

Interviews

For the qualitative research question regarding students' reactions towards the use of background music during translation task, an interview

was designed. As four participants sufficed for the purposes of the present research, in this study, six learners from experimental group were randomly selected for interview in face-to-face interaction with researchers. The interviews were held individually in the university. The interviews lasted no more than thirty minutes. Before starting each interview, researchers briefly discussed the purpose of the interview, substantiating the effect of music in translation practice as a psychological issue. In order to protect their identities, the respondents were asked to choose a pseudonym to which the researchers could refer.

Some answers to interview items are as follow:

After analyzing and categorizing the common themes, the major factors that emerged from the interview included: 1) evokes emotions, 2) stimulus to choose better equivalent for the target text, 3) better performance as a result of their acquaintance with music, 4) arousing interest and awareness, and 5) acting as a natural channel for remembering and connecting information.

Discussion

The first question of this study investigated the effect of the using background music on the students' translation scores. The related hypotheses, which claimed that listening to Mozart music has no effect on student's translation scores, were rejected. Evidence from various sources of data could help to verify the rejection. The results of the t-test of the study (see Table 5) could be employed to confirm this analysis. Level of significance was 0.04. Thus, the level of significance was less than 0.05 ($p < 0.05$). The difference between the means of the post-tests of the study could not be by chance so the result of computed independent t-test is convincing enough to reject the null hypothesis. In other words, the results confirmed the difference between the two groups and the positive effect of music. Therefore, the answer to the research question is positive, that is, there is a significant difference between the subjects' mean scores on the translation task due to the use of background music.

The second objective investigated the relationship between personality dimensions and their translation performance while exposed to background music. Considering the findings shown in Table 7, the results obtained from

Pearson product-moment correlation coefficient showed a medium, positive correlation between scores of students' performance and scores of introversion-extroversion scale. The finding showed that there was a relationship between the background music and personality traits.

The results of this study are in line with the findings of Richards and Rodgers (2001) who showed that the musical background helps to induce a relaxed attitude, influences on general ability lead to a sense of achievement, increase self-esteem, and aid to overcome in frustration.

This study showed consistency with the work of researchers such as JamaliKivi et al., (2013) , Rauscher et al.(1994), Harmon et al.(2008), and Chou (2010) who noted a similar point in Mozart music effect. All of them agree that Mozart classical music has positive effect on various fields such as speaking proficiency, spatial reasoning performance, cognitive abilities and reading comprehension task.

The present work supported the findings of Furnham and Strbac (2002) who surveyed the distractive effects of background music, office noise and silence on male and female students. The result conveyed that the males and females seemed to have similar performance abilities, but extroverts seemed to perform better than introverts when distracted by music and noise.

The use of music in classroom during translation task made a significant change. Comparison between the control group and the experimental group mean score confirmed this statement. The students who received music moved progressively toward greater accuracy in translating texts and carefully produced natural translations.

Previous studies indicated that background music can raise memory capacity, enhance self-esteem, enhance cognitive abilities (Hall, 1952), stir up emotions (Anderson, 2000, cited in Lewis, 2002), and help to reduce stress and enhance willingness to learning (Davies, 2000 cited in Lewis, 2002). From the finding of the present study, the authors conclude that implementing music in learning situation was good for extrovert students, and the best way for introvert students was to translate in a quiet room. For extrovert students, it is necessary to know that the music should be prepared carefully with the participants' need and favorite, so it can act as a facilitator for better thinking.

The information from this study will be of great values to all instructors. It provides a procedure that could bring positive results into the classroom. Survey on the literature showed that using music may make learning easier and is a feasible strategy for today's classrooms. It can create an exciting environment full of emotion and concentration. Since complete quietness is nearly impossible to achieve, the sum of data on the use of background music in translation classes suggests that implementing calming background music is a low cost strategy, which produces a variety of positive psychological effects. In this way, bringing in a pleasing music which fits students' need could act as a teaching aid and help students engage actively in the planned task. Teachers who face unmotivated and discouraged students could apply music as an aid to flourish tedious atmosphere. Music allows the listener to acquire and transfer information kinesthetically. In addition, music provides a friendlier environment so it could help raise the students' level of motivation. A hidden point is that the instructors should be aware of students' music preference and appropriately put it into learning environment; otherwise, it may act as a distracting element.

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Biodata

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