# Hearing Productivity: Music and Productivity Study

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**Hearing Productivity: Music and Productivity Study**

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***Purpose:*** *The current study explored the research question which music genre increases one's productivity the most?* ***Methods:*** *Data was collected from 45 participants from social media (Reddit, Instagram, Twitter) and the Lindenwood Participant Pool. An online Qualtrics survey was created to test participants productivity through typing tasks and a few demographic questions were asked at the end. Participants were asked to type as many nonsense words as they could in a minute while having one of the four music genres: R&B, classical, Latin, and rap playing in the background. The task was completed four times so all participants were exposed to all music genres and lists of nonsense words. This was followed by two demographic questions that asked about participants' gender and race/ethnicity and participants were also asked if they used a normal keyboard or a touchscreen keyboard.* ***Results:*** *The findings revealed there was no statistically significant effect of genre on the variable of correctly typed nonsense words $F(3,28)$ = 1.913, p = .150.* ***Discussion:*** *The implications of these findings greatly contrast previous research, and more research will need to be conducted to confirm these differences.*

*Keywords: music, productivity, task performance, music genres, typing, timed*

Music has been around for thousands of years. It has been used as a form of communication, self-expression, healing, and productivity. Since music has been around there has been numerous research studies that observed the relationship between music and various human behaviors (Küssner et al., 2019). One focus of many research studies is on the impact of music genres and one's task performance.

A study conducted by Young and Nolan (2015) explored an individual's attention level on various tasks as they listen to music. The participants were placed into one of three groups: no music (control group), classical music (no lyrics), and popular music (lyrics). Young and Nolan (2015) found an increase of reaction times for the participants completing their multi-part tasks

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for those who listened to classical music compared to the no music group (control). This shows a relationship between music and its impact on one's task performance. Although there is a possible connection, the study did fail to account for the potential impact of using popular songs that were well known at the time on participant's task performance.

Kiss and Linnell (2021) examined the effect background music can have on people's attentional state and their task performance. For this study, participants were asked to create a 30-min playlist of preferred songs to replicate the participant in their normal environment. They were asked to complete two sets of tasks; one set was completed while they listened to their playlists and the other set was completed in silence. Kiss and Linnell (2021) concluded people tended to have a higher attention level on a task when background music was playing compared to when a task was completed in silence. They also did not find an association between task-focus or mind-wandering and lyrics. This would mean any songs participants listened to with lyrics did not affect their performance or attentional levels while completing tasks.

Mohan and Thomas (2020) also conducted a similar study to Kiss and Linnell (2021). They wanted to analyze the effect of background music more specifically, cultural preference of music and task performance. All participants were Indian adolescents and were asked to listen to Indian classical music and Western classical music. First, participants completed a reading comprehension task with no music this was followed by completing the same task while listening to the Indian classical music and Western classical music. This was done over the course of four weeks, each week a new condition was given. Mohan and Thomas (2020) found that participants had a significant increase in task performance when background music was playing than when

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no music was playing. They also found that participants had the highest task performance when listening to Indian classical music (Shanmukhapriya) compared to Western classical music (Mozartian).

Geethanjali et al. (2016) decided to look more into the link between music and cognitive performance. They investigated not only task performance but the possible change in one's mood. Participants listened to classical Indian instrumental music or Indian jazz music. Participants were asked to complete three different tasks under three different conditions. In the first condition participants were asked to listen to their chosen music so a baseline pulse rate could be taken. Participants were then asked to listen to the chosen music and complete a short task. For the last task, participants were asked to complete it in silence. Participants were also given a short rest in between every task in an attempt to accurately measure their pulse rates. Geethanjali et al. (2016) identified a decrease in task performance when participants completed the task in silence. They found an improvement in task performance for both music genres compared to the task completed in silence. But Geethanjali et al. (2016) also found the reaction time was greatly decreased when participants were listening to both music genres compared to having no music playing.

Arboleda et al. (2022) investigated the effect of music on an individual when completing a stressful task. They tasked participants with creating a vacation plan for a made-up client and placed participants in one of the three groups (fast-tempo, slow-tempo, no music). Arboleda et al. (2022) made the task stressful by creating random glitches within the website participants were using to create the vacation plan. They found that regardless of the tempo of music this condition

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did decrease task performance in participants. Arboleda et al. (2022) also found the performance of neither of the temp groups differed from the no music group.

Wientjes et al. (2021) conducted a study to explore the perceptions of listening to music while working on homework. They used a questionnaire to ask around 84 participants various formed questions about the use of music when completing school-related assignments. Wientjes et al. (2021) found during reading assignments participants are less likely to listen to music compared to during writing assignments.

Oldham et al. (1995) conducted a study to see if there was a connection between headset use and employee mood and performance. Contrary to the other studies, Oldham et al. (1995) found no significant main effect in music type and performance with the employees in the workplace. There results even suggested that the duration of the music would not influence the worker's performance either.

Most of these studies reported there to be a significant impact of music on task performance in participants. But many of the studies did not focus on different music genres, they tended to focus on background music or similar music genres. My study explored how different music genres will impact participants productivity. I hypothesized there will be a difference in productivity between music genres.

**Method**

**Participants**

There was a total of 45 participants that completed my survey. Of those 45 participants, 37 were women and 8 were a man. There were 38 who identified as White and 1 who identified as Black and 6 who identified as Other. All participants marked they did not have any hearing issues. But out of the 45 participants, only 32 participants had complete sets of data from completing all the typing tasks causing the sample size to be become small.

I recruited participants from social media (Instagram, Reddit, Twitter) and Lindenwood Participant Pool (LPP). The LPP is a participant pool at Lindenwood University. The LPP offers extra credit opportunities to participate in behavioral research for those in qualifying Lindenwood courses. LPP uses Sona Systems to upload studies for their participants. My study met the requirements of Lindenwood Institutional Review Board. Those recruited using the LPP received two extra credit points while those recruited on social media did not receive compensation.

**Materials**

There were four music genres being used for this experiment (R&B, Classical, Latin, Rap). The songs used for each genre were "A Song for You" (R&B; Hathaway, 1971), "Juba Dance" (Classical; Price, 1932), "Indigo" (Latin; Camilo & Evaluna, 2021), and "No Role Modelz" (Rap; Cole, 2014). An instrumental version of the original songs was used to decrease the chances of participants being distracted by lyrics. The songs were downloaded from YouTube by using the website Addoncrop. This made the YouTube videos into audio files that could be

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uploaded into Qualtrics (see Appendix A). All songs were carefully selected to exclude current

popular songs and instrumental versions of the songs were used. Using songs without lyrics was

done to avoid distractions that lyrics might have caused.

For the task, four lists of nonsense words were created. Nonsense words were created to

account for familiarity with everyday words. This would allow participants to have an accurate

measure of productivity since they have no familiarity with these made-up words. The nonsense

words were created using Soybomb.com, a nonsense word generator. All the lists of words

contained five short nonsense words (5-7 letters long), seven medium-length nonsense words (8-

10 letters long), and three long nonsense words (11-15 letters long) which equals 15 nonsense

words per list (See Appendix B). Creating the lists in this way ensured all lists have a similar

level of difficulty. For the task, one song appeared at the top of the screen followed by a list of

nonsense words that participants typed as quickly as they could within a minute. Participants

played the music and began the typing task. Lastly, a question asking participants if the audios

played properly, and a set of demographics completed the survey. The demographic questions

asked participants their race/ethnicity and gender and if they use a keyboard or a touchscreen

keyboard to complete the tasks.

**Procedure**

I used Qualtrics to create an online survey. The survey was comprised of an informed

consent statement that had been edited from a template provided by the Lindenwood Institutional

Review Board. The informed consent gave a summary of the tasks in the survey, compensation

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in the form of extra credit points for those recruited through the LPP, privacy of participant's

data, and the researcher's contact information.

　　After giving consent, participants were asked to complete a short task while music played

in the background. This task was repeated for four different music genres (R&B, classical, Latin,

rap) and four lists of nonsense words (List A, B, C, D).

　　Every music genre was paired with all lists of nonsense words and randomized. So,

participants received a random pairing of all songs and lists once without any repeats. This

accounted for if any of the lists were not created to a similar difficulty as the other lists. When

displayed to participants all lists followed the same order, so participants received all levels of

difficulty (short, medium, long) at least once before the time was over. The order followed: short,

medium, short, medium, long. This order was repeated three times to create the full list of 15

nonsense words. This task was followed by demographic questions. The questions ask

participants their gender, race/ethnicity, and if they completed the survey using a keyboard or

touchscreen keyboard.

　　Lastly, the experiment included a debriefing statement that thanked the participant, stated

the study aim, restated all information will be kept confidential, and the researcher's contact

information. A version of my online experiment can be found in Appendix B. The link to my

survey was uploaded to Instagram, Reddit, Twitter, and Sona Systems. Once the data collection

process was completed, I used Excel to score the data by reviewing all the nonsense words

participants typed to see if they were correctly typed compared to the nonsense word. I then used

IBM SPSS (Version 28) to analyze the data. I ran a one-way repeated measures analysis of

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variance (ANOVA) and descriptive statistics were run to find the mean and standard deviation of the correct number of words typed for each music genre.

## Results

To test my hypothesis, a one-way repeated measures ANOVA comparing the dependent variable of correctly typed nonsense words by music genre revealed there was no statistically significant effect of genre $F(3,28) = 1.913$, $p = .150$. As for the descriptive statistics for the music genres, the average number of words typed correctly for R&B was 10.65 ($SD = 4.103$). For classical, the average number of words typed correctly was 10.45 ($SD = 4.073$). For Latin, the average number of words typed correctly was 11.48 ($SD = 3.586$). For rap, the average number of words typed correctly was 11.90 ($SD = 3.004$).

## Discussion

My results found there was no connection between music genre and productivity. There was no statistical difference between music genre on productivity. The results differed from those of past studies. When reviewing Mohan and Thomas (2020)'s study they found there to be an increase of task performance while background music played which was not supported in the current study.

There were quite a few limitations for the current study. The first limitation was due to the many participants seemed to be confused by the task instructions. Since the task included nonsense words, participants thought the task involved unscrambling the words instead of typing them as they were presented. This occurred for a handful of participants, and I think this also

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caused many participants to drop out of the survey because they thought the task was hard when it was not the correct task.

Another limitation came from the study being conducted online. This online format made it difficult to know if participants were in fact listening to the audios when completing the tasks. While there was a question to verify if participants played the audios and there was no way for me to verify this.

The last limitation I observed was with the type of keyboard participants used to complete the task. I asked participants what type of keyboard participants used (touchscreen or a keyboard) and noticed the participants who used a touchscreen keyboard had more issues with autocorrected words compared to those who used a regular keyboard. Since the study used nonsense words the autocorrection feature on some devices could have interfered with the data collected.

For future research, I would suggest conducting the study in-person; this would resolve a few of the limitations above. It would ensure participants are indeed listening to the audio files and allow participants to ask questions about the instructions they are still confused about before attempting the tasks. Also, if this study was conducted in-person it could account for the issue with the keyboards. The researcher would be able to use the same device and device settings for all participants. This will hopefully allow for all participants to have the most similar conditions to receive the most accurate results.

The next suggestion I have is to include a practice task for participants. This will give participants a chance to familiarize themselves with the task before attempting the real one. It

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would also give the participants a chance to ask the researcher for further clarity if they still are unsure about the task or how to complete it.

My last suggestion would be to use different music genres to test productivity, especially ones that have not been tested in various experiments such as pop, electric dance music, K-pop, and so on. I would even advise selecting music genres that have become popular over the last five years. This would be most beneficial because it would show how productive or nonproductive popular music genres might be. It might also help to change the task participants are being asked to better measure productivity. Instead of having one task, participants could be timed to see how many different tasks they can complete correctly. The task could be simple like matching an image and name. I hope line of this research helps individuals in finding a music genre that increases their productivity the most especially for studying and in work environments.

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**Appendix A**

**Audio files**

A Song For You by Donny Hathaway (R&B)

Juba Dance by Florence Price (Classical)

Indigo by Camilo and Evaluna (Latin)

No Role Modelz by J. Cole (Rap)

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## Appendix B

### List of Nonsense words

| List A: | List B: |
|---------|---------|
| • extiturnicized | • novaneymoric |
| • happlargetal | • bespoority |
| • specarrouse | • extialitions |
| • smastrial | • drauduzes |
| • marldles | • caciates |
| • foulent | • complid |
| • printees | • begicalin |
| • nitablazy | • pounons |
| • slotect | • diseize |
| • boasuran | • wanesses |
| • donavy | • coalka |
| • bismite | • eltiman |
| • butiverse | • begroileightly |
| • binoon | • snownuard |

| List C: | List D: |
|---------|---------|
| • hobbinted | • vestalambly |
| • fondingened | • hapleathine |
| • autorty | • claste |
| • faneip | • glarfillinter |
| • snaprogagilly | • concint |
| • pulaug | • surito |
| • utalle | • slotozena |
| • sinonon | • pinceds |
| • whitomets | • cleisma |
| • nonoposer | • denterler |
| • bootecks | • dogtonal |
| • satcheally | • primpuzzie |
| • rattinton | • jottarite |
| • centin | • clairfoire |