Does listening to music you like help you read better?

Easy version of: Perham, N., & Currie, H. (2014). Does listening to preferred music improve reading comprehension performance? Applied Cognitive Psychology, 28(2), 279–284. https://doi.org/10.1002/acp.2994

How to use this copy. Hover over (or click) a coloured or underlined part to read a short note. Your highlighter colours for Step 2: **yellow** = what they did · **blue** = what they found · **pink** = words you don't understand.

Abstract

Many students read with music on. Some research says that music you like helps you think better. Other research says that background sounds with words distract you when you read. We tested which idea is true. 30 university students read 4 texts and answered questions about them. Each student read once in quiet, once with their favourite songs with lyrics, once with songs with lyrics that they disliked, and once with music without lyrics. Students understood the texts best in quiet and with music without lyrics. Songs with lyrics made reading worse, and the songs students liked were just as bad as the songs they disliked. Words in music seem to get in the way when you need to understand words on a page.

1. Introduction

Music is everywhere. Many people work, study and read with music in the background, and many believe that it helps them.

Some studies support this belief. The most famous one is the "Mozart effect": people did better on spatial puzzles after listening to Mozart for 10 minutes (Rauscher et al., 1993). Later studies showed that Mozart was not special. Listening to music you like puts you in a better mood and gives you more energy, and this helps for a short time (Nantais & Schellenberg, 1999; Thompson et al., 2001). But in these studies, the music was played before the task, not during it.

Other studies show that background sound can hurt performance. This is called the irrelevant sound effect: a sound that you are told to ignore still makes you do worse, for example when you try to remember a list in the right order (Jones, 1999). Usually, it does not matter what the sound says. But when the task is about meaning, like reading and understanding a text, sounds that carry meaning, such as speech and lyrics, hurt more than sounds without meaning (Martin et al., 1988).

So the two kinds of research disagree. However, little is known about what happens when people read while music they like is playing.

In this study, we asked: does listening to music you like while reading help or hurt reading comprehension, compared with music you dislike, music without lyrics, and quiet? There were two possible predictions. If music you like helps, students should read best with their favourite songs. If words in music distract, students should read worst with both kinds of songs with lyrics, liked or disliked, and best in quiet or with music without lyrics.

2. Method

Participants

Thirty undergraduate students from a university in south Wales (United Kingdom) took part. They were between 19 and 65 years old, and about half were men and half were women. All had good vision and hearing, and English was their first language. Students who liked thrash metal music were not allowed to take part, because thrash metal was used as the disliked music.

Design

We used a within design: every student did all four conditions. The independent variable was the sound, with four conditions: quiet, liked songs with lyrics, disliked songs with lyrics, and music without lyrics. The dependent variable was the reading comprehension score, from 0 to 6. The order of the conditions was counterbalanced: it changed from student to student, so that being tired or getting practice at the end could not explain the results.

Materials

Texts. We used four texts from real SAT exams (tests used for entrance to universities in the United States), about silent films, the diversity of life, journalism, and genetics. Each text was about 70 lines long and had 6 multiple-choice questions, each with 4 possible answers.

Music. For the liked music, each student brought their own favourite songs with lyrics (for example, songs by One Direction, Frank Ocean or Katy Perry). For the disliked music, we used a thrash metal song with lyrics by the band Death Angel. For the music without lyrics, we used another Death Angel song, with no singing. All music was played through headphones, at a normal to fairly loud volume (65 to 75 decibels).

Pilot study. The lyrics of thrash metal can be hard to hear. So before the main study, we ran a pilot study: 10 people listened to the metal song and tried to understand the lyrics. They understood about 75% of the words, so the lyrics could really be heard.

Questionnaire. At the end, students rated each condition from 0 to 100 on a Likert scale: How much did you like it? How familiar was it? How distracting was it? How

well do you think you did?

Procedure

Students took part alone or in pairs, in a small laboratory. They read the four texts, one in each condition, and answered the questions. They were told that they might hear music in their headphones, but that they should ignore it. There was no time limit; most students needed 10 to 15 minutes per text. At the end, they filled in the questionnaire.

3. Results

Reading comprehension

Students understood the texts best in quiet and with music without lyrics, and worst with the two kinds of songs with lyrics. A statistical test called a one-way ANOVA showed that the kind of sound made a significant difference, $F(3, 87) = 8.05$, $p < .05$. The effect size was large, $\eta^2 = .22$.

Students did significantly better in quiet than with disliked songs, and significantly better in quiet than with liked songs. There was no significant difference between quiet and music without lyrics, and no significant difference between liked songs and disliked songs.

Students' ratings

Table 1 shows how students rated each condition. They liked quiet and their own songs the most. They found both kinds of songs the most distracting, music without lyrics less distracting, and quiet the least distracting. They thought they did best in quiet, then with music without lyrics, and worst with both kinds of songs.

Table 1. Students' average ratings of each condition (from 0 = lowest to 100 = highest).

Rating (0 to 100)	Disliked songs	Liked songs	No lyrics	Quiet
How much I liked it	20.2	83.2	29.9	81.0
How familiar it was	12.8	88.3	7.5	70.0
How distracting it was	78.7	75.3	46.4	10.4
How well I think I did	35.8	35.7	52.8	67.3

4. Discussion

Many people believe that music they like helps them study. For reading, our results show the opposite: songs that students liked hurt reading comprehension as much as songs they disliked. Music without lyrics did not hurt reading, even though it was thrash metal.

Why? Reading means understanding the meaning of words. Lyrics are words too, and the brain also processes their meaning, even when we try to ignore them. The brain

has to block the lyrics so that they do not mix with the text, and this effort makes understanding the text less efficient. Liking the song does not stop this.

Our results do not contradict the Mozart effect: in those studies, music was played before the task, not during it. Also, unlike an earlier study (Perham & Sykora, 2012), students here knew which conditions hurt them: they rated both kinds of songs as the most distracting, and they thought they did worst with them.

One limitation is that we cannot know exactly how much of the lyrics students understood while they were reading. In the pilot study, people understood about 75% of the words, but in the main study students were trying to ignore the music. Future research could test sounds with more or less meaning.

In sum, when you need to read and understand, songs with lyrics hurt, even the ones you love. Music without lyrics hurts less, and quiet is best. This matters for students, because understanding what they read is important for their studies.

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