

THE EFFECTS OF THE FAMILIARITY OF THE LANGUAGE OF BACKGROUND MUSIC LYRICS ON A WORD MEMORY TASK

Shawn King sking@upei.ca

Dept. of Psychology, University of Prince Edward Island, 550 University Avenue, Prince Edward Island, Canada, CIA 4P3

1. INTRODUCTION

Do lyrics in a language familiar to the listener distract the listener more than lyrics in an unfamiliar language? Huron (1999) defines lyric listening as a particular mode of listening in which the listener "may pay special attention to 'catching' the lyrics and attending to their meaning." This type of listening is only possible when the lyrics are in a language "understood by the listener." In turn, it is then expected that lyrics in a language unfamiliar to the listener can be more easily disregarded.

Salame and Baddeley (1989) compared the effects on memory in college students of unattended vocal and instrumental music, speech and amplitude-modulated noise. Speech and music with lyrics disrupted subjects' short-term recall abilities. Salame and Baddeley (1990) also showed that unattended speech can disrupt immediate phonological memory. In a previous study of Salame and Baddeley (1987) subjects classified pairs of visually presented consonants classified on the basis of either case or rhyme while continuous spoken Arabic played in the background. The Arabic, unfamiliar to the subjects, had no major effect on the subjects' performance.

Several other studies regarding music with lyrics and recall show negative effects of music on recall as opposed to conditions with no lyrics or no music at all (Balch, Bowman & Mohler 1992; Balch & Lewis 1996; Eich 1995; Sousou 1997). In addition, several studies on unattended speech also conclude that the speech decreases recall scores (Logie & Baddeley 1987; Martin, Wogalteret & Forlano 1989; Salame & Baddeley 1982, 1986, 1987, 1990). All these studies reinforce the fact that extraneous music and speech have an impact on memory and recall for other primary material presented at the same time. Music alone and speech alone affect memory, and music combined with lyrics (speech) also has a similar negative effect.

Based on the conclusions from the studies previously mentioned, it can be hypothesized that listening to lyrics in a language familiar to the listener will be more distracting than listening to lyrics in a language unfamiliar to the listener. While in a learning setting, the familiar language should cause disruption in the learning period and thus impair recall scores. In contrast, the unfamiliar language

should have a smaller disruptive effect or no disruptive effect during the learning period and thus should not impair recall scores to the same degree as the familiar language.

2. METHOD

2.1 Participants

The subjects were 20 students of the University of Prince Edward Island between the ages of 18 and 24.

2.2 Apparatus and Materials

The lists containing two 20 word pairs consisted of two one-syllable nouns per pair.

The compact disc (CD) contained a rendition of Renato Carosone's classic swing style "Americano" in Italian and the Brian Setzer Orchestra's neo-swing style version of "Americano" in English. "Americano" was selected because it met the criteria of being recorded in the subjects' native language, English, and in another language with which the subjects were unfamiliar, in this case Italian. While a number of songs have been recorded in both English and French, none of these songs satisfied the familiarity criterion since most Canadians have some knowledge of French. Both songs had been edited to balance sound quality. The CD was played on a Panasonic RXES-25 Boombox stereo at a the same level for all listeners.

2.3 Procedure

Each subject received a condition with the English song and with the Italian song. Random assignment determined which 10 subjects heard the Italian version first and the English version second, and which 10 subjects heard the English version first and the Italian version second. Random assignment also determined which subjects received word list A first or word list B first.

Subjects completed the tasks in a quiet room. Each subject was told that the purpose of the experiment was to study memory capabilities while music is playing. The subject was handed the word list and the song was played. The subject was asked to stop looking at the word lists once the song had ended. One minute after the song had stopped, the subject was requested to recall as many of the word pairs as possible. The subject was given a word list with only one of the words from each pair. The subject attempted recall and

write down the missing words. No music was played during the recall session.

The second condition preceded the same as the first, except with a different version of the song being played and a different list of word pairs. After the recall period, the subject was debriefed. It took approximately 20 min to complete the experiment per subject: 3 min for the first condition, 1 min to *relax*, 2 min for recall, 5 min between conditions, 3 min for the second condition, 1 min to *relax*, 2 min for recall, and a few additional minutes for instructions and debriefing.

The subjects were not informed of the actual intent of studying the difference between the recall scores while the different lyric languages are played. This was done in order to avoid an expectancy effect. Because the subjects would not be given all the details of the experiment in the beginning, the subjects were asked to sign a second consent form after the debriefing, allowing their data to be analyzed.

3. RESULTS

Of the 20 subjects, there were only 4 whose memory for English words was higher than that for Italian words, and 2 subjects whose scores were equal in both languages. The other 14 subjects had scores higher in Italian than English consistent with the hypothesis that lyrics in an unfamiliar language will be less detrimental to memory than lyrics in a familiar language.

The alpha level was set at .05 for the statistical report. The mean score for the English condition was 8.35 (standard deviation 4.67). The mean score for the Italian condition was 9.85 (standard deviation of 5.7). For the English condition, only 41.75% of the words were recalled while the Italian condition showed 49.25% of the words were recalled; a 7.5% difference. These differences were in the expected direction but a *t* test showed no significance of the difference between the groups [$t(18) = 0.9, p > .05$]

4. DISCUSSION

While the results were not statistically significant, the trend in the means is consistent with the hypothesis that the more familiar language--English--for the lyrics would be more distracting. Only 6 of the 20 subjects had higher recall under the English lyrics, leaving 14 subjects whose scores were higher under Italian lyrics. It must be noted that there is a confound in this study. The musical pieces, Carosone's "Americano," were recorded by two different artists in different styles and production settings. It is possible that if the recordings were by the same artist, and there were additional control, the effect would be stronger. Based on Huron's definition of lyric listening, a difference in recall was expected between the presence of lyric language familiar to the listener and lyric language

unfamiliar to the listener. Returning to this definition of lyric listening, that listeners "may pay special attention to 'catching' the lyrics and attending to their meaning" when the lyrics are in a language "understood by the listener" (Huron 1999), it could be hypothesized that greater interference of lyrics would arise with the familiarity of the language of the lyrics. The majority of the subjects in the present study were more distracted by lyrics in a language that was familiar, and had a lower recall score than listening to lyrics in a language that was unfamiliar.

Lower scores in the English condition coincide with Baddeley's postulate of the articulatory loop. Memorizing the word pairs would entail subvocalizing and holding the words in articulatory loop. The English lyrics may have also entered the articulatory loop, interfering with the retention of the word pairs. When trying to recall the word pairs, the information would be inaccessible if forced out of the loop by the English lyrics. Because the subjects' ability to understand Italian is very limited, the words and their meanings would not be understood as word units by the subject, and thus would not enter the articulatory loop.

It is here suggested that the unfamiliar language does not simply disappear into thin air, but rather, is mentally converted from a language *into another instrument*, thus making the song an instrumental, and the lyrics *ignored* with the rest of the music. The whole song is simply *tuned out* to a level where it is not distracting, somewhat like the hum from a computer, a heater, or any other instrument of the soundtrack to daily life.

Although the original hypothesis, that English lyrics would be more distracting than Italian, was not statistically supported, the trends in the data warrant further exploration.

REFERENCES

- Huron, D. (1999). Music Cognition Handbook: A Glossary of Concepts. Retrieved February 2, 2002, from Ohio State University, School of Music Web site: <http://www.music-cog.ohio-state.edu/Music838/glossary.html>
- Salame, P., & Baddeley, A. D. (1987). Noise, unattended speech and short-term memory. *Ergonomics*, 30, 1185-1194.
- Salame, P., & Baddeley, A. D. (1990). The effects of irrelevant speech on immediate free recall. *Bulletin of the Psychonomic Society*, 28, 540-542

For full references see:
<http://www.geocities.com/blacksuitband/References.html>

NOTE. The study arose through an independent experiment for a class project and is being followed up in an honours thesis under the direction of Dr. Annabel Cohen