



Wine & Song:

The Effect of Background Music on the Taste of Wine

Dr Adrian C. North

Professor of Psychology
School of Life Sciences
Heriot Watt University
Edinburgh EH14 4AS
United Kingdom

Wine & Song

When people hear music this represents more than just the action of sound waves upon the ear drum. Rather, when this information reaches the cortex, the brain *interprets* these sounds. In particular, hearing a particular piece of music activates, or *primes*, related pieces of information. For example, when we hear *Sgt Peppers Lonely Hearts Club Band* by The Beatles this primes thoughts relating to the 1960s, hippies, flower power, the Vietnam War, and so on.

The ability of music to prime other aspects of our knowledge has implications for our attitudes and behaviours. Because music primes certain thoughts, it makes us more likely to *use* these thoughts when asked to subsequently think or act. As an example of this, an earlier study (North, Hargreaves, & McKendrick 1997) played French and German music in a supermarket. Shoppers were not told that the music was French or German, but by using either accordions (French) or an oompah band (German) this nonetheless primed notions of 'Frenchness' or 'Germanness'. Consistent with this priming, French music led to French wine outselling German by five bottles to one, whereas German music led to German wine outselling French by two bottles to one. Music primed certain thoughts and people reacted accordingly. A similar study (Areni & Kim, 1993) played classical music and top 40 music in a wine cellar. The stereotype that people hold concerning classical music meant that it primed thoughts of sophistication and affluence. Consequently, it is not surprising that classical music led to customers buying more expensive wine than did top 40 music.

The experiment here took this process a step further. Could the thoughts primed by music influence what people actually perceive via another of the senses, in this case taste? Specifically could music influence the taste of wine? Earlier research on music and priming leads us to suspect that, by priming certain thoughts and feelings, music can have a corresponding impact on taste. Specifically, the research tested the predictions that;

- If the music playing in the background is powerful and heavy then people should perceive the wine that they are drinking as powerful and heavy
- If the music playing in the background is subtle and refined then people should perceive the wine that they are drinking as subtle and refined
- If the music playing in the background is zingy and refreshing then people should perceive the wine that they are drinking as zingy and refreshing
- If the music playing in the background is mellow and soft then people should perceive the wine that they are drinking as mellow and soft

Method

The music used in the research was selected via a small pilot study. In return for a glass of wine, a group of five people were played the four candidate pieces of music and asked to try to match each of these to one of the four perceptions investigated by the research, namely ‘powerful and heavy’, ‘subtle and refined’, ‘zingy and refreshing’, and ‘mellow and soft’: responses from each of the five people were identical and corresponded with the expectations of the experimenter. Subsequently, the following four pieces of music were adopted for use in the study as follows;

Type of Music	Piece of Music
Powerful and heavy	<i>Carmina Burana</i> – Orff
Subtle and refined	<i>Waltz of the Flowers</i> (from <i>The Nutcracker</i>) – Tchaikovsky
Zingy and refreshing	<i>Just Can't Get Enough</i> – Nouvelle Vague
Mellow and soft	<i>Slow Breakdown</i> – Michael Brook

Main Study

A total of 250 adults were recruited on a university campus and offered a free glass of wine in return for answering a few questions about its taste. After being asked to gargle a glass of tap water (in order to clear away any other taste), participants were given a

125ml glass of either red wine (cabernet sauvignon) or white wine (chardonnay) and taken to one of five rooms in which to drink it. They were asked to finish the complete glass in around five minutes or so and to not converse with any other people in the room. Each of the five rooms featured one of the four types of music (or no music) that played on a continuous loop.

25 people (12 males, 13 females or vice versa) tasted each type of wine in conjunction with each type of music. A summary of this experimental design is below.

Number of Participants	Type of wine	Type of Music
25 (12M, 13F)	White wine	Powerful and heavy
25 (13M, 12F)	White wine	Subtle and refined
25 (12M, 13F)	White wine	Zingy and refreshing
25 (13M, 12F)	White wine	Mellow and soft
25 (12M, 13F)	White wine	No music
25 (13M, 12F)	Red wine	Powerful and heavy
25 (12M, 13F)	Red wine	Subtle and refined
25 (13M, 12F)	Red wine	Zingy and refreshing
25 (12M, 13F)	Red wine	Mellow and soft
25 (13M, 12F)	Red wine	No music

On finishing the wine, participants were asked to rate its taste by giving a rating from 0 to 10 for each of the four dimensions investigated, namely powerful and heavy, subtle and refined, zingy and refreshing, and mellow and soft. A rating of 0 represented “The wine definitely does not have this characteristic” and a rating of 10 represented “The wine definitely does have this characteristic”. Participants were also asked to rate how much they liked the wine on a scale from 0 = “Not at all” to 10 = “Very much”, and to then rate how much they liked the music on the same scale. Participants were asked not to drive for two hours.

Results

Perceptions of the wine

For each of the four perceptions, ratings in the ‘white wine – no music’ condition were compared against ratings in the four music conditions. In each case, the characteristics of the music primed people to perceive the wine in a manner consistent with the music. More simply, this means that;

- ratings of the white wine as powerful and heavy were 32% higher in the powerful and heavy music condition (mean rating = 5.64) than in the ‘white wine – no music’ condition (4.28)
- ratings of the white wine as subtle and refined were 31% higher in the subtle and refined music condition (6.84) than in the ‘white wine – no music’ condition (5.24)
- ratings of the white wine as zingy and refreshing were 40% higher in the zingy and refreshing music condition (7.00) than in the ‘white wine – no music’ condition (5.00)
- ratings of the white wine as mellow and soft were 26% higher in the mellow and soft music condition (7.20) than in the ‘white wine – no music’ condition (5.72)

The same pattern was found in ratings of the red wine. This means that;

- ratings of the red wine as powerful and heavy were 60% higher in the powerful and heavy music condition (6.92) than in the ‘red wine – no music’ condition (4.32)
- ratings of the red wine as subtle and refined were 41% higher in the subtle and refined music condition (6.36) than in the ‘red wine – no music’ condition (4.52)
- ratings of the red wine as zingy and refreshing were 43% higher in the zingy and refreshing music condition (6.80) than in the ‘red wine – no music’ condition (4.76)

- ratings of the red wine as mellow and soft were 25% higher in the mellow and soft music condition (6.76) than in the ‘red wine – no music’ condition (5.40)

In each case, these differences between the music and ‘no music’ conditions were statistically significant ($p < .05$ or better). In lay terms, this means that these results are not a fluke.

Extent of the effect

If we take the mean of these percentages, it shows that the music shifted the perception of the wine in the direction of the mood expressed by the music by an average of 37.25%. The mean percentage for the white wine was 32.25% and the mean percentage for the red wine was 42.25%, meaning that the effect of music was stronger on the taste of red wine than on the taste of white wine.

Why was the effect stronger for red wine than white?

We know that priming effects of music are more common when people are asked to judge something that they know little about or find difficult to judge. Perhaps the effect of music was stronger for red wine because, judging by sales alone, the public are more familiar with white wine than red: this would mean they were more uncertain when judging red wine and would therefore be more prone to influence by music. Alternately, many oenologists argue that red wine has a greater complexity of flavour than white, and this greater complexity would again provide greater uncertainty in the mind of consumers and more scope for bias through music.

Liking for the music and liking for the wine

There were no differences in liking for the different types of music. All were equally popular. The different types of music (and the ‘no music’ condition) had no effect on ratings of liking for the wine. In other words, the music may have influenced the taste of

the wine but it did not lead to people necessarily liking it more. Music made the wine taste different: it did not make it taste better.

Note that there were no differences between the responses of males and females on any measures (and nor would we expect to find these).

Conclusion

Background music influences the taste of wine. The specific taste of the wine was influenced in a manner consistent with the mood evoked by the music. If the background music was powerful and heavy then the wine was perceived as more powerful and heavy than when no background music was played. If the background music was subtle and refined then the wine was perceived as more subtle and refined than when no background music was played. If the background music was zingy and refreshing then the wine was perceived as more zingy and refreshing than when no background music was played. If the background music was mellow and soft then the wine was perceived as more mellow and soft than when no background music was played. The magnitude of these effects was not insubstantial, and they were stronger for red wine than for white.

References

Areni, C. S. and Kim, D. (1993). The influence of background music on shopping behavior: classical versus top-forty music in a wine store. *Advances in Consumer Research*, 20, 336-340.

North, A. C., Hargreaves, D. J., and McKendrick, J. (1997). In-store music affects product choice. *Nature*, 390, 132.