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Short Communication

Ethnic congruence of music and food affects food selection but not liking



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ARTICLE INFO

Article history:

Received 19 August 2016

Received in revised form 13 October 2016

Accepted 13 October 2016

Available online 14 October 2016

Keywords:

Food choice
Ethnic food
Ethnic music
Congruency
Liking

ABSTRACT

Research investigating whether hearing a particular type of ethnic music will influence people to choose food from that same culture has found mixed results. Some studies found that when given a selection of different ethnic foods subjects were more likely to choose the food that was typical of the culture whose music was playing. Other studies have found no effect. The present study investigated the effect of instrumental Italian or Spanish music played in a university dining hall on the selection of either an Italian (chicken parmesan) or a Spanish (seafood paella) entrée. On two different nights both the Italian and Spanish entrée were available and students could select from those two entrees or other food choices. Italian music was played on one night and Spanish on another. The number of people who chose the two entrees was recorded on both nights. In addition, the hedonic ratings of the two entrees were obtained when either congruent or incongruent music was being played during the meal. On both nights more people chose the chicken parmesan than chose the seafood paella. However, there was a significant effect of the music on food choice. A significantly greater proportion of diners selected the paella over the chicken parmesan on the night when the Spanish music was played (34%) than on the night when the Italian music was played (17%). There was no effect of the type of music on liking for the food, possibly because the music was not as loud where diners were eating as where they ordered.

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1. Introduction

Music is a part of the “ambience” of a restaurant, along with the décor, lighting, temperature, and other environmental components. Recent research has found that the choice of music played in a restaurant might have a significant impact on the diners in a number of ways. For example, music has been found to affect speed of eating (Caldwell & Hibbert, 2002; Milliman, 1986; Roballey et al., 1985). In addition, classical music increases the amount of money diners spend on food (North & Hargreaves, 1998; North, Shilcock, & Hargreaves, 2003).

The perceived pleasantness of food can also be affected by music. In general, food is rated as more pleasant when it is consumed while listening to music the subject rates as pleasant and food is rated as less pleasant when consumed while listening to unpleasant music (Kantono et al., 2015, 2016). However, what music is considered pleasant might be context specific. Music that is pleasant in a nightclub might not be pleasant in a coffee house. In a similar vein, a certain type of music might be pleasant if it is appropriate for the restaurant in which it is played but unpleasant

if it is inappropriate. Patrons might expect, and enjoy hearing, reggae music in a Jamaican restaurant but not in a French restaurant. These contextual preferences based on ethnicity might affect liking for the food consumed while listening to that music. Listening to Bob Marley might make jerk chicken taste better but coq au vin taste worse. That is, if the music in a restaurant is ethnically congruent with the food served, then liking for that food might be enhanced.

In addition to affecting how much a food is liked, hearing a particular kind of music prior to consumption of food in a restaurant might also affect food choice. Patrons might be predisposed to choose food that is congruent with the music being played. The findings that more expensive food and wine are chosen when classical music is being played (Areni & Kim, 1993; North & Hargreaves, 1998) might be examples of such an effect. Thinking that classical music is associated with having a lot of money might lead one to choose food that one imagines would be eaten by people who listen to such music (i.e., the more expensive things on the menu).

A similar predisposition might occur with ethnic music which might call to mind other aspects of that particular culture (i.e., priming of that culture would occur). In research (Bell, Meiselman, Pierson, & Reeve, 1994) conducted in a restaurant, environmental cues other than music (i.e., an Italian décor and Ital-

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ian food names) increased selection of food rated as more Italian (e.g., spaghetti and macaroni). Music, like décor, which is associated with a particular culture should call to mind other aspects of that culture, including its food, which might increase selection of that particular food. Such effects have been found with selections of either German or French wine in a wine store (North, Hargreaves, & McKendrick, 1997, 1999). People purchased more German wine than French wine when German music was played and more French wine than German when French music was played.

While no studies have looked at the effect of music on food choice in a restaurant setting, a number of laboratory studies have suggested that ethnic music might affect food selection in a restaurant. In one laboratory study conducted with Scottish undergraduates (North, Sheridan, & Areni, 2016, Experiment 1), subjects were asked to choose a dish they would order from a menu containing equal numbers of dishes perceived to be American, Chinese or Indian while background music was playing. They tended to choose a dish that was associated with the same country as the music that was playing when they made their selection. Another laboratory study (Yeoh & North, 2010, Experiment 2) conducted in Malaysia (a country with three distinct ethnic groups – Malay, Indian, Chinese) had subjects choose between a Malay and an Indian snack food as a reward for solving math problems in what they thought was a math study. Subjects choose the Malay snack if they had been listening to Malay music and the Indian snack if they had been listening to Indian music. However, this was only true among the subjects who were ethnically Chinese and not ethnically Malaysian or Indian. Those latter subjects chose foods common to their own culture.

Selecting food that is congruent with the music one is hearing might be caused by priming of the culture from which it comes. This tendency to choose food congruent with the music might lead to diners enjoying the food more than they would have, had they chosen a food not congruent with the music. That is, listening to music congruent with the food might increase liking for the food.

The present study investigated the influence of ethnic music on both food choice and liking for ethnic food in a restaurant setting. The restaurant was a university dining hall in the USA where it is common to have food selections available on the menu from a number of different cultures. The choice of two different entrees (chicken parmesan and seafood paella) from two different cultures (Italian and Spanish) was recorded on nights when either Italian or Spanish music was played. It was predicted that hearing Italian music would increase the proportion of people choosing the Italian entrée and hearing Spanish music would increase the proportion of people choosing the Spanish entrée. In addition, liking for the two entrees among those eating those entrees was recorded when the two different types of music was played. It was hypothesized that the food would be liked more on the night when the ethnically congruent music was played compared to when the incongruent music was played.

2. Method

2.1. Subjects

Subjects in the selection part of the study were 275 Montclair State University students and staff who had dinner on one of two nights (156 on one night and 119 on the other) and chose an entrée of either chicken parmesan or seafood paella. A subset of these subjects, 86 (43 on each night) participated in the hedonic evaluation part of the study. These subjects met the above criteria and also completed and returned a questionnaire concerning their

meal. 36 male, 46 female, and 4 unknown gender subjects participated. Their mean age was 19.4 (SD = 1.5) years.

The dining hall is located in a campus dormitory located near the Music building. The diners in that dining hall are mostly students and staff from that dormitory or students and staff from the Music building. The composition of diners varies little from day to day.

The study was approved by the Montclair State University Institutional Review Board.

2.2. Music

All music was played on an mp3 portable sound system (Ion Tailgater Active stereo) which was positioned near the entrance to the dining hall where subjects ordered their meal. The music for the Spanish-themed night consisted of selections of Spanish Flamenco style guitar music. The music for the Italian-themed night consisted of Sicilian and Venetian music predominantly played on mandolin, guitar and accordion.

2.3. Food

Food was chicken parmesan and seafood paella prepared by the staff at the university dining hall. Both entrees were among the selection of entrees normally served in this dining hall.

2.4. Questionnaire

The questionnaire asked subjects' gender and age. It then asked if they had selected an entrée and if so what it was. They were then asked why they chose the entrée and to rate how much they liked it by giving it a number from a 201-point bipolar hedonic scale where -100 was labeled as "most unpleasant taste imaginable", 0 as "neither pleasant nor unpleasant", and +100 as "most pleasant taste imaginable".

2.5. Procedure

The study took place in the university dining hall on two different nights two weeks apart. The two nights were in the autumn during the middle of the semester. Both the chicken parmesan and seafood paella were available entrees on those two nights along with other options. The two target entrees were listed among the entrees on touch screen ordering kiosks located in the entrance to the dining room. Subjects entered their selection into the kiosk and obtained an electronic buzzer which notified them when their food was ready to be picked up. Although music was not usually played in the dining hall, music was playing near the kiosks in the entrance to the dining room as subjects entered and continued playing throughout the dinner period (4–8 pm). Since the music was novel we only presented Spanish and Italian music on one night each. We were concerned that by presenting the same music with the same foods on two different nights our subjects would figure out the purpose of the music and that would influence our results. Therefore, on the first night Italian music was played and on the second night Spanish music was played. Which type of music played on which night was determined by a coin toss.

Researchers approached diners after they received their entrée and asked them to fill out the questionnaire concerning their dining experience. They were given the questionnaire and a pencil and were asked to return the completed questionnaire and the pencil in a box located at the exit as they left the dining hall. Counts of how many people ordered chicken parmesan and seafood paella on both nights (Italian music and Spanish music nights) was obtained from the kiosk data.

3. Results

3.1. Selection data

More people chose chicken parmesan than seafood paella on both nights. Out of 156 subjects on the night when the Italian music was playing, 129 (83%) chose the chicken parmesan and 27 (17%) chose the seafood paella. Out of 119 subjects on the night when the Spanish music was playing, 79 (66%) chose the chicken parmesan and 40 (34%) chose the seafood paella. A 2×2 Chi-square test showed that a significantly greater proportion of the diners selected the seafood paella over the chicken parmesan on the night when the Spanish music was played than on the night when the Italian music was played, $\chi^2(1) = 8.88$, $p = 0.003$, Yule's $Q = 0.42$.

3.2. Liking data

Only those diners who chose chicken parmesan or seafood paella and returned their questionnaires were included in the data analysis (43 subjects/night). A two-way ANOVA with food (chicken parmesan or seafood paella) and music (Italian or Spanish) as the two factors was conducted on the hedonic ratings. There was no difference in hedonic ratings of the chicken parmesan and the seafood paella, $F(1,82) = 0.43$, $P = 0.51$. There was also no difference in hedonic ratings of the foods on the two nights when the Italian and the Spanish music was playing, $F(1,82) = 0.29$, $p = 0.59$. Most importantly, there was no significant interaction between the two factors, $F(1, 82) = 0.34$, $p = 0.56$. Thus, the food was not rated as significantly better or worse when the ethnicity of the music was congruent with the entrée. The chicken parmesan was given a mean hedonic rating of 43.5 (SD = 53.4) when the Italian music was played and 57.6 (SD = 43.2) when the Spanish music was played. The seafood paella was given a mean hedonic rating of 58.5 (SD = 41.1) when the Spanish music was played and 59.1 (SD = 50.1) when the Italian music was played.

4. Discussion

Although chicken parmesan was chosen by more people on both nights than was seafood paella, a significantly greater proportion of diners selected the paella when the Spanish music was played than when the Italian music was played. Therefore, even though there was an existing preference for one of the two target foods over the other, we still found that the ethnicity of the music playing resulted in a shift in the proportion of people choosing the two foods. This result is different from that of Yeoh and North (Experiment 1, 2010) who did not find an effect of music in a laboratory experiment when the preference for one of the two foods was large. Their study was conducted in Malaysia with Malaysian subjects. They found that hearing Western or Malaysian music did not affect their preference for a Malaysian food over a similar Western food. Most Malaysian subjects chose the Malaysian food. This preference was probably driven by the degree of familiarity of one food over the other. Many people tend to avoid novel foods because of neophobia (see Birch & Marlin, 1982; Pliner, 1982). The Western food was probably less familiar than the Malaysian food to the Malaysians. This might have resulted in avoidance of the unfamiliar Western food.

We too probably had foods that differed in familiarity. In our study, the chicken parmesan was probably more familiar than the seafood paella, particularly in northern New Jersey, USA where there is a high proportion of ethnic Italians and many restaurants serving Italian cuisine. However, the ethnic and cuisine diversity in this area of the USA ensured that neither dish was so unfamiliar

to most subjects as to result in neophobia for the dish and the tendency to avoid the dish. What this suggests is that even when preferences exist between dishes, music can act as a prime to affect the choice of a food, as long as one food is not completely novel. We suspect that complete novelty would result in neophobia, and that resulting fear of the new food would be stronger than the priming effect of the music.

Like Yeoh and North (2010) and North et al. (1999), we also found that the priming of the food selection by the music was probably unconscious. Only two of the 86 subjects over the two nights mentioned the music that was playing in the dining hall as the reason they chose their entrée (one on the Italian music night and one on the Spanish music night). The majority of subjects reported that they chose their entrée because they knew (from previously having the entrée) or expected that the entrée would taste good.

While the music influenced food choice in the dining hall it did not affect how much the diners liked the entrée they ate. We expected that diners would rate a food as more hedonically positive when congruent music was played rather than incongruent music. This lack of an effect is not the result of either a ceiling or floor effect in the hedonic ratings of the entrees. Both entrees were rated between 43.5 and 59.1 on the 201-point bipolar hedonic scale which is moderately pleasant. Clearly the food items could have been rated considerably lower or higher.

The results might mean that ethnic congruency of music with the food consumed does not affect liking. It has been shown that the environment in which a meal is eaten can influence the hedonic ratings of the foods in the meal (e.g., Edwards, Meiselman, Edwards, & Leshner, 2003; Meiselman, Johnson, Reeve, & Crouch, 2000). The same food is rated better when it is served in a 4-star restaurant than when served in a private boarding school dining hall (Edwards et al., 2003). However, the ethnic décor of the restaurant (Bell et al., 1994) does not increase liking for the cuisine from the ethnicity corresponding to that décor. Bell et al. (1994) found no effect of Italian décor in a restaurant on how much people liked food they perceived as Italian rather than British. So, while the quality of the environment might affect liking for the food it is possible that the congruency of the environmental stimuli (e.g., music or décor) with cuisine has no effect on liking for the food. Although it might strike one as odd to hear reggae in a French restaurant, it might not affect how much we like our *coq au vin*.

However, there are other possible explanations for the lack of an effect of music congruency on liking for the food. One is that the subjects who chose the food that was incongruent with the background music playing did so because, despite the priming, they really liked the incongruent ethnic food. That extreme liking overcame the priming. Subjects, on the other hand, who were influenced by the music might not have had such a strong liking for either food. If that is the case, the baseline liking for a food might be stronger among the subjects that chose the musically incongruent food on any given night than those who were guided by the ethnicity of the music. Even if hearing the ethnic music that was congruent with the food increased how good that food tasted, it might simply have increased it to the point where it matched that of the liking for the other food by those who liked it so much they chose it despite the incongruent music. That is, subjects choosing the incongruent food liked the food so much that their liking overrode the priming by the music. In order to truly test the effect of the ethnically congruent music on liking for a food, one would have to randomly assign subjects to eat a food that was ethnically congruent or incongruent with the music.

A second possible explanation for not seeing an effect of the music on liking is that our subjects might simply not have paid attention to the music, as is suggested by their not mentioning the music as a reason for their food choice. If they were not actively

listening to the music as they ate, they might not have noticed whether the music was congruent or incongruent with the food. In fact, in our setting it is possible that the music was too faint in the area where the subjects were eating to be easily heard. Although the music was audible throughout the dining hall it was much louder in the entrance where the subjects ordered. There was no sound system in the dining hall, which was quite large, and in order for the music not to be uncomfortably loud where the subjects ordered their food, it wound up being quite soft where many students were eating their food. This audibility problem was exacerbated by the noise produced by conversation as the dining hall filled. Investigating the role of congruent versus incongruent music on the hedonic evaluation of food in a restaurant or dining hall should be done in a setting with a sound system providing a more consistent volume throughout the dining area.

This study is limited in that it only examined music and food from two ethnicities. In addition, we only observed selection and liking during one night for each type of music. Although unlikely, it is possible that the dependent measures were affected by the night on which the particular music was played rather than the music itself. Further examination of food and music from other ethnicities should be examined. In particular, from ethnicities that are not as common to the diners.

5. Conclusion

This study shows a clear effect of music on food selection in a real-life setting. Similar to other studies conducted in laboratories, hearing ethnic music can increase selection of ethnically congruent food in a commercial setting. Thus, music can be used to guide food selection in such settings. However, no effect of the ethnic music on liking for the ethnically congruent food was demonstrated. This could mean that food is not liked more if diners are listening to ethnically congruent music. However, because of limitations in the study (most importantly the audibility level of the music in the dining hall where subjects were eating) this needs further investigation.

Acknowledgements

The authors would like to thank Scott Parker for comments on earlier drafts of this paper and Scarlet Ruiz and Sara Panei for their help with data collection. We would also like to thank Joseph Pon-

teliona, James Robinson, and Richard Freudenfels of the Montclair State University Dining Service for their assistance and cooperation.

References

- Areni, C. S., & 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.
- Bell, R., Meiselman, H. L., Pierson, B. J., & Reeve, W. G. (1994). Effects of adding an Italian theme to a restaurant on the perceived ethnicity, acceptability, and selection of foods. *Appetite*, 22, 11–24.
- Birch, L. L., & Marlin, D. W. (1982). I don't like it; I never tried it: Effects of exposure on two-year-old children's food preferences. *Appetite*, 3, 353–360.
- Caldwell, C., & Hibbert, S. A. (2002). The influence of music tempo and musical preference on restaurant patrons' behavior. *Psychology & Marketing*, 19, 895–917. <http://dx.doi.org/10.1002/mar.10043>.
- Edwards, J. S. A., Meiselman, H. L., Edwards, A., & Leshner, L. (2003). The influence of eating location on the acceptability of identically prepared foods. *Food Quality and Preference*, 14, 647–652. [http://dx.doi.org/10.1016/S0950-3293\(02\)00189-1](http://dx.doi.org/10.1016/S0950-3293(02)00189-1).
- Kantono, K., Hamid, N., Shepherd, D., Yoo, M. J. Y., Carr, B. T., & Grazioli, G. (2015). The effect of background music on food pleasantness ratings. *Psychology of Music*, 13, 1–15. <http://dx.doi.org/10.1177/0305735615613149>.
- Kantono, K., Hamid, N., Shepherd, D., Yoo, M. J. Y., Grazioli, G., & Carr, B. T. (2016). Listening to music can influence hedonic and sensory perceptions of gelati. *Appetite*, 100, 244–255. <http://dx.doi.org/10.1016/j.appet.2016.02.143>.
- Meiselman, H. L., Johnson, J. L., Reeve, W., & Crouch, J. E. (2000). Demonstrations of the influence of the eating environment on food acceptance. *Appetite*, 35, 231–237. <http://dx.doi.org/10.1006/appe.2000.0360>.
- Milliman, R. E. (1986). The influence of background music on behavior of restaurant patrons. *Journal of Consumer Research*, 13, 286–289.
- North, A. C., & Hargreaves, D. J. (1998). The effect of music on atmosphere and purchase intentions in a cafeteria. *Journal of Applied Social Psychology*, 28, 2254–2273.
- North, A. C., Hargreaves, D. J., & McKendrick, J. (1997). In-store music affects product choice. *Nature*, 390, 132.
- North, A. C., Hargreaves, D. J., & McKendrick, J. (1999). The influence of in-store music on wine selections. *Journal of Applied Psychology*, 84, 271–276. <http://dx.doi.org/10.1037/0021-9010.84.2.271>.
- North, A. C., Sheridan, L. P., & Areni, C. S. (2016). Music congruity effects on product memory, perception, and choice. *Journal of Retailing*, 92, 83–95. <http://dx.doi.org/10.1016/j.jretai.2015.06.001>.
- North, A. C., Shilcock, A., & Hargreaves, D. J. (2003). The effect of musical style on restaurant customers' spending. *Environment and Behavior*, 35, 712–718. <http://dx.doi.org/10.1177/0013916503254749>.
- Pliner, P. (1982). The effects of mere exposure on liking for edible substances. *Appetite*, 3, 283–290.
- Roballey, T. C., McGreevy, C., Rongo, R. R., Schwantes, M. L., Steger, P. J., Winger, M. A., et al. (1985). The effect of music on eating behavior. *Bulletin of the Psychonomic Society*, 23, 221–222. <http://dx.doi.org/10.3758/BF03329832>.
- Yeoh, J. P. S., & North, A. C. (2010). The effects of musical fit on choice between two competing foods. *Musicae Scientiae*, 14, 165–178. <http://dx.doi.org/10.1177/102986491001400107>.