

RESEARCH REPORTS

The Influence of In-Store Music on Wine Selections

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This field study investigated the extent to which stereotypically French and German music could influence supermarket customers' selections of French and German wines. Music with strong national associations should activate related knowledge and be linked with customers buying wine from the respective country. Over a 2-week period, French and German music was played on alternate days from an in-store display of French and German wines. French music led to French wines outselling German ones, whereas German music led to the opposite effect on sales of French wine. Responses to a questionnaire suggested that customers were unaware of these effects of music on their product choices. The results are discussed in terms of their theoretical implications for research on music and consumer behavior and their ethical implications for the use of in-store music.

People's access to music in the modern world is greater than at any previous time. For example, record stores have Web pages that allow samples to be downloaded; personal stereos and car radios allow people to listen to the music of their choice during the course of almost any everyday activity. These changes are important because previous psychological studies of responses to music have often tended to be carried out under rather artificial circumstances. Konecni argues, for example, that

the vast majority of research studies . . . have treated aesthetic preference and choice as if they, and the process of [music] appreciation itself, normally occur in a social, emotional, and cognitive vacuum, as if they were independent of the contexts in which people enjoy aesthetic stimuli in everyday life. (1982, p. 498)

Furthermore, those few studies that have been carried out under more naturalistic circumstances have provided interesting suggestions as to how theories derived in the labo-

ratory should be modified to account for people's everyday musical experiences (see reviews by North & Hargreaves, 1997a, 1997c).

One increasingly salient feature of music in everyday life is its use in commercial and leisure settings such as bars, restaurants, and shops; further research in these contexts seems warranted given the large sums of money involved, for example, in buying in-store music reproduction equipment and paying royalties on the music played (see National Music Council, 1996). In the light of arguments such as these, the present study addresses one particular influence that music might have on consumer behavior, namely its potential to guide supermarket shoppers' product choices. A brief summary of this study has appeared elsewhere (North, Hargreaves, & McKendrick, 1997); the present article is a more detailed exposition of the research, which allows a description of the theoretical background, a replicable description of the methodology, a description of the statistical analyses carried out and a discussion of the theoretical and practical implications of these.

Although in-store music may be an irritant to some shoppers, an increasing number of studies indicate that it may also influence consumer behavior. A recent review by North and Hargreaves (1997b; see also Bruner, 1990) suggested that these influences may fall into three categories. First, several studies have indicated a relationship between musical tempo and the speed of consumer behavior. For example, Milliman (1982) showed that fast music led to shoppers moving around a supermarket more quickly than did slow music, and he argued that this might explain why more money was spent by shoppers in the slow music condition. In a follow-up study, Milliman (1986) manipulated the

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tempo of the music played in a restaurant: Fast music led to diners eating more quickly, whereas slow music led to slower eating and, perhaps as a consequence of this, more drinks being bought from the bar (see also McElrea & Standing, 1992; Roballey et al., 1985; and Smith & Curnow, 1966).

Second, other studies suggest that music can influence consumers' time perceptions. For example, Kellaris argued that time perception during a given period should increase with the informational properties of any music that is experienced concurrently. Time perception should increase with musical tempo or complexity, and a number of studies have produced results consistent with this theoretical framework (e.g., Kellaris & Altsech, 1992; Kellaris & Kent, 1992; Kellaris & Mantel, 1994; Kellaris, Mantel, & Altsech, in press).

Third, a few studies suggest that music can influence consumers' interactions with commercial environments. For example, Dube, Chebat, and Morin (1995) manipulated the musical background of a video simulation of a bank and found independent and interactive effects of musically induced pleasure and arousal on consumers' desires to affiliate with bank employees: Higher desire to affiliate was generally associated with higher degrees of musically induced pleasure and arousal. Similarly, North and Hargreaves (1996a) found that liking for the music in a student cafeteria was related positively to diners' willingness to return to it, the extent to which they were willing to interact with others, and the number of people actually visiting the source of the music, namely a stall offering leaflets on student welfare issues.

Perhaps the most interesting study in this third group was reported by Areni and Kim (1993), who provided some evidence that music can influence actual sales. Classical and Top 40 music were played in an American wine cellar, and although these two types of music had no influence on the number of wine bottles sold overall, classical music led to sales of more expensive wine. The authors argued that the knowledge associated with classical music *fit* the behavior of buying expensive wine and that this was why customers spent more (see also Alpert & Alpert, 1990). Although these results are certainly very provocative, they are also limited in one important respect. Because only one product was involved, the experimental design does not preclude the possibility that classical music would increase the sales of *any* product, not just those that it fits, such as expensive wine (see North & Hargreaves, in press, for evidence that classical music may increase sales of any product). As such, although consistent with musical fit, the results do not provide a conclusive demonstration of its importance, and the present study addresses this issue directly.

Research on musical fit is particularly interesting in light of recent developments in the psychology of the arts. A number of studies conducted since the 1980s have indicated

that people prefer artistic objects that are prototypical of the class in question (see, e.g., Hekkert & Van Wieringen, 1990; Martindale & Moore, 1988; Martindale, Moore, & Borkum, 1990; Martindale, Moore, & West, 1988; Whitfield, 1983; Whitfield & Slatter, 1979; but see also critical debate concerning the theory in Boselie, 1991; Hekkert & Snelders, 1995). Put simply, the preference-for-prototypes model claims that typical exemplars of a given category should be preferred to less typical exemplars. For example, Georgian chair designs are perceived as more typical of the category "furniture" and are therefore preferred to more modern designs (Whitfield & Slatter, 1979; for similar evidence concerning specifically musical stimuli, see, e.g., Martindale & Moore, 1989; and North & Hargreaves, 1996b).

Effects such as these derive from a neural network approach to human cognition. For example, Martindale and Moore (1988) argued that the mind is composed of interconnected cognitive units that differ in the strength with which they can become activated (see, e.g., Martindale, 1981). Units coding more prototypical stimuli are activated more frequently and are therefore stronger than those coding atypical stimuli. Martindale and Moore claim that

aesthetic preference is hypothetically a positive function of the degree to which the mental representation of a stimulus is activated. Because more typical stimuli are coded by mental representations capable of greater activation, preference should be positively related to prototypicality (p. 661).

Although the aim of Martindale and Moore's (1988) model is to explain preferences between aesthetic objects, it is relevant to consumer research because it suggests the role of knowledge activation in responses to music. The model asserts that the mind is composed of densely interconnected cognitive units, such that a specific piece of music can activate related knowledge structures. For example, the preference-for-prototypes model argues that people do not just respond to seeing a Georgian chair; instead, this may be associated with the related category "the Regency period", which may in turn be associated with the related category "aristocratic England". Similarly, the model argues that people do not just respond to hearing "Sgt. Pepper's Lonely Hearts Club Band"; instead, this album may be associated with the related category "The Beatles", who may in turn be associated with the related category "1960s pop music", which may in turn be associated with other aspects of the period such as the hippie movement.

This theoretical framework has interesting parallels with Areni and Kim's (1993) arguments concerning musical fit and product selection discussed earlier. In short, it allows us to explain the potential effects of music on consumer behavior in terms of more widely researched theories of other types of responses to music. If in-store music leads to the activation of relevant related knowledge structures, it is not

unreasonable to suspect that this same process might influence product choice and explain the results obtained by Areni and Kim concerning musical fit. For example, music that is stereotypically French should activate related knowledge structures concerning France, and this in turn should prime the selection of French products because these fit the music in question. Similarly, music that is stereotypically German should activate related knowledge structures concerning Germany, which should in turn prime the selection of German products because these fit the music in question. In-store music should prime certain aspects of consumers' knowledge of the world and increase their likelihood of selecting appropriate products, such that the effects of musical fit on product choice can be explained in terms of the preference for prototypes model. Although several models of consumer decision making have been proposed (see reviews by Cohen & Chakravarti, 1990; Tybout & Artz, 1994), this application of the prototypicality model to Areni and Kim's concept of fit seems to have some promise as a means of explaining the effects of specific musical pieces on in-store product choice. It should be noted that the present research does not attempt to test the preference-for-prototypes model directly. The model was devised in an attempt to explain preferences, and it is mentioned here as it suggests that in-store music may activate product-relevant knowledge.

French and German music was played on alternate days alongside French and German wines in the alcoholic beverages section of a supermarket. Experimenters unobtrusively counted the number of bottles of each type of wine that were sold. Our hypothesis was that French music should prime the selection of French wine, and German music should prime the selection of German wine. In other words, customers should buy the wine that fits the music playing. We also asked consumers who selected a bottle of wine to complete a brief questionnaire to investigate the reasons for their choice.

Method

Participants

A total of 82 shoppers bought a bottle of wine from the display, of whom 44 (54%; 21 men, 23 women) agreed to complete the postpurchase questionnaire. We asked respondents to this questionnaire to state which of five age groups they belonged to, and the frequencies in each were as follows: 18–29 years = 5; 30–39 years = 7; 40–49 years = 9; 50–59 years = 4; and 60+ years = 11.

Materials

We displayed a selection of four French and four German wines on an aisle end in the alcoholic beverages section of a supermarket. The wines were of a reasonably affordable price to the typical shopper and were matched between the countries for their price

and degree of sweetness. We played traditional French and German folk music: the French music was played mainly on the accordion, and the German pieces were played by a Bierkeller band mainly featuring brass instruments. Approximately 15 min of each was recorded from compact disc onto separate audio cassettes on a continuous loop. A small pilot study established that the pieces possessed good face validity as exemplars of the two styles in question.

Design

Each of the four shelves on the display featured one French and one German wine of the same price and sweetness. During the first week, we placed German wine on the left of the display and French wine on the right, and we reversed them for the second week of testing. Several appropriate national flags were stuck on either side of the display to clarify each wine's respective country of origin. At the end of the first week, the shelf ordering of the wine was also changed such that each of the four wines was on a different shelf than before.

We played French and German music on alternate days over the two-week testing period; for instance, French music was played on Monday of the first week and German music was played on Monday of the second week. This control was designed to minimize the effects of any extraneous variables on customers' wine selections. The music was played from a high-quality tape deck positioned on the top shelf of the display with the volume set so that it could be heard approximately 1 m away.

We first asked questionnaire respondents an open-ended question concerning the reason for their choice of wine. They were then asked to rate whether they usually preferred French or German wine on a scale ranging from 0 (*always prefer French*) to 10 (*always prefer German*) and to rate the extent to which the music made them think of France and Germany (0 = *not at all*, 10 = *very much*, in both cases). Finally, respondents were asked to respond *yes* or *no* to the question "Did the type of music playing influence your choice of wine?"

Procedure

We conducted the study in a supermarket situated in the suburbs of a city in the East Midlands region of the United Kingdom. Testing was carried out during the entire opening hours of the store (i.e., 8:30 a.m.–8:00 p.m. on Monday through Thursday and on Saturday; 8:30 a.m.–9:00 p.m. on Friday; 10:00 a.m.–4:00 p.m. on Sunday). The 2-week testing period was not close to any public holidays. Experimenters observed the display from an unobtrusive position behind the checkouts where shoppers usually waited for taxis. The two experimenters (1 male, 1 female) were dressed casually and had full carrier bags beside them. Shoppers were approached with the questionnaire once they had selected a bottle of wine and moved out of the alcoholic beverages section and into the next aisle.

Results

To check the proposed manipulation of the music, we used a 2 (Type of Music) \times 2 (Response Item) mixed analysis of variance (ANOVA) on respondents' ratings on

Table 1
Bottles Sold Within Each Music Condition

Bottles sold	French music	German music
French wine	40	12
German wine	8	22

the items "To what extent did the music make you think of France/Germany?" This produced a significant type of Music \times Response Item interaction, $F(1, 35) = 26.00, p < .001$ (accounting for 42.62% of variance), which indicated that French music made customers think of France rather than of Germany ($M_s = 6.25$ and 1.52 , respectively, $SD_s = 3.34$ and 2.08 , respectively) and that German music made customers think of Germany rather than of France ($M_s = 6.08$ and 2.50 , respectively, $SD_s = 3.73$ and 3.68 , respectively). This verifies the proposed manipulation of the music and suggests that the French music should have activated customers' knowledge associated with France and the German music should have activated customers' knowledge associated with Germany.

We conducted a chi-square test to determine whether the type of wine chosen was associated with the type of music played. The result of this was significant, $\chi^2(1, N = 82) = 19.79, p < .001$ (accounting for 24.14% of variance), with the same level of significance occurring when Yates's correction was applied. The number of wine bottles sold is shown in Table 1; French outsold German wine when French music was played, whereas German outsold French wine when German music was played. Sales of each of the eight types of wine were also totalled individually; these totals revealed no evidence of preference for one brand over another within each nationality.

The questionnaire data indicated a discrepancy between actual wine purchasing and participants' verbal reports of the reasons for their choices. Only 1 of the 44 questionnaire respondents specifically nominated the music when asked the open-ended question concerning the reason for their choice of wine. The final item on the questionnaire asked participants to state explicitly whether or not they thought the music had influenced their choice of wine, and only 6 of the 44 questionnaire respondents said that the music had influenced their choice.

Finally, we conducted an independent-subjects t test to test for differences between the French and German music conditions in questionnaire respondents' ratings of whether they usually preferred French or German wine. The resulting value was nonsignificant, $t(41) = 0.83$, which indicates that respondents attracted to the display were not predisposed to select French over German wine or vice versa.

Discussion

The results indicate that music influenced customers' product selections. French music led to higher sales of

French than German wine, and German music led to higher sales of German than French wine. This finding has both theoretical and practical implications. From a theoretical perspective, the finding is consistent with the notion that music can prime related knowledge and the selection of certain products if they fit with that knowledge. Responses to the questionnaire were also consistent with this interpretation in that the French music made the respondents think of France rather than of Germany, and the German music had the opposite effect.

Taken purely at face value, the questionnaire data suggest that respondents were largely unaware of the effect that music had on their wine selections, with only a very small number citing the music as a reason for their choice. The most obvious explanation for this is simply that the effects of musical fit on product selection are not consciously recognized, which raises three points. First, many stores already use nonmusical environmental variables such as odor or lighting (Gulas & Bloch, 1995; Kotler, 1973–1974) and other marketer-initiated stimuli such as sales promotions (Tybout & Artz, 1994) in an attempt to influence consumer spending. In-store music is analogous to these other marketing tools. Second, it remains to be determined whether customers really were unaware of the effects of music on their purchasing: Maybe customers did realize that the music was an attempt to influence their purchasing, but did not like to admit this to researchers. Indeed, customers may not have explained their wine choice in terms of the music simply because this did not seem to them like a rational explanation for their behavior. The issue of conscious awareness remains an obvious candidate for future laboratory-based research. Other studies might investigate the extent to which the present findings generalize to other products, or they might include a "no music" control to consider the effects of music relative to baseline sales. Third, it seems unlikely that in-store music could determine shoppers' purchases if, for example, they had already decided to buy a particular brand before entering the store. Existing research on judgmental biases (see, e.g., Bodenhausen & Wyer, 1985; Krueger & Rothbart, 1988; Macrae & Shepherd, 1989) suggests that the heuristic influence of music would mediate behavior only when there is an element of uncertainty in product choice or when customers are in a state of low involvement with the decision process (see, e.g., Park & Young, 1986; but also MacInnis & Park, 1991).

Indeed, we should note one possible variation on the interpretation of these results. Because the music was played from the display containing the wines, it may well have attracted the attention of people who already intended to buy wine from one of the countries in question, rather than as a direct influence on customers' product selections. The present data does not allow us to test this alternative explanation. However, two further points should be made.

First, the supermarket in which the study was carried out stocked approximately 100 brands of both French and German wine. Therefore, customers who had decided to buy either a French or a German wine before entering the store might well be expected to consider purchasing one of the other French or German wines instead of one of the eight types of wine on the experimental display. Second, even if this alternative explanation is correct in the case of some customers, then the fact that music was able to attract them to a specific area of the store still shows that music activated knowledge and was associated with the selection of matching products. In conclusion, the finding that retailers may use musical fit to influence consumers' in-store product choices shows the considerable potential of models concerning prototypicality–neural networks in attempting to explain the effects of music on consumer behavior.

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