

## CHAPTER 48

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# MUSIC AND CONSUMER BEHAVIOR

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BACKGROUND music plays a very important role in our everyday lives: we encounter it in many everyday activities like working, reading, eating, drinking, shopping, driving, and many more. There exists a general belief that music has beneficial effects of different kinds: for example, on our cognitive abilities and even on our IQs; on our social abilities, in that music can bring people together and enable them to work cooperatively in choirs or bands; and of course on our emotional reactions and sensitivity, as this is probably the most obvious effect that music has upon us all. But some studies also show that music can sometimes give rise to adverse or no effects. Because of the potential diversity of the music which is played, of the media via which it is played, and the numerous different dependent variables in our behavior which are affected, it is not surprising that several attempts have been made to carry out meta-analyses of different studies of the effects of background music so as to assess its overall impact comprehensively and systematically.

## META-ANALYSES OF THE EFFECTS OF BACKGROUND MUSIC

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For example, Behne (1999) reviewed 153 studies which investigated the effect of background music on what he called “nonmusical behavior,” which included aspects such as the understanding of documentaries, playing sports, driving a car, and behavior in airports, shopping malls, and banks: he did not include the effects of “foreground music,” such as attending concerts, participating in music therapy, or watching films. Behne found that about one-third of the studies which he looked at yielded results which were not significant at the 5% level, and that another third produced what he called “inconsistent results”: he also found that the proportion of nonsignificant results had increased over time, and thus concluded that, in general, background music has little impact on everyday behavior, and that any effect that

it might have is diminishing over time. One of the problems with Behne's analysis was that by only using *p* values and not effect sizes, he was unable to take into account the sizes of the samples in each case of his 153 studies. Most subsequent meta-analyses have corrected this by using effect sizes.

Subsequent meta-analyses have looked, for example, at the effects of music therapy on the effects of medical and dental treatment (e.g., Gold, Voracek and Wigram, 2004; Standley, 1996), and have mostly found large and positive overall effects. A more recent study by Kämpfe, Sedlmeier, and Renkewitz (2011) used effect sizes in two different meta-analyses: the first examined the effects of background music as compared with no music, and the second involved comparison of different types of background music, on a number of different dependent variables. These authors examined 189 articles which ultimately had to be reduced to the 97 which provided adequate data for the analysis: the articles included 66 studies which allowed the comparison between the effects of music versus nonmusic, and 71 which allowed the comparison of different kinds of music.

The dependent variables in all these studies were classified into four main types, which were termed "mundane behavior" (e.g., speed of eating and drinking); "cognition," which was divided into "judgment" (e.g., assessment of one's own level of concentration) and "achievement" (e.g., number of correct responses in a test); and "emotion" (e.g., measures of nervousness or excitement). The result of the overall analysis was that there was a global null effect of music as compared with no music, but a more detailed examination of individual studies which gave rise to specific positive effect sizes suggested that this was probably due to the averaging out of some specific positive and some specific negative effects: for example, it appeared that background music disturbs the reading process and has some small negative effects on memory, but it has a positive impact on emotional reactions and on achievement in sport. The results of Kämpfe et al.'s (2011) second meta-analysis, which compared different types of background music, showed that the tempo of the music influenced the tempo of the activities being performed.

These analyses of background music in general provide a backdrop to our specific interest in this chapter, namely the effects of music on consumer behavior. One meta-analysis in this area was carried out by Garlin and Owen (2006), who examined 32 studies which investigated the effects of background music in retail settings. They assessed the effects of music on five main categories of dependent variable which they called "affective" (e.g., mood, arousal, pleasure, nostalgia), "financial returns" (value of sales, number of items purchased, rate of spending, quantity of items purchased), "attitudinal/perceptual" (e.g., liking, brand loyalty, product evaluation, satisfaction with the shopping experience), "temporal effects" (e.g., perceived and actual duration of experience, time taken to serve customers, time taken to make spending decisions, duration of music listening), and "behavioral" (store choice, behavior speed, number of items examined, in-store traffic flow). The 148 different data points which emerged from the 32 studies were then separated into three groups which reduce the number of independent variables to three, which were termed Value, Affect, and Duration. The overall finding of the study was that there were "small-to-moderate, yet quite robust effects in terms of background music" (p. 755) on these three general categories of dependent variable. More specifically, there were five main results:

- Familiarity/liking has a positive effect on patronage.
- The mere presence of music has a positive effect on patronage as well as felt pleasure.

- Slower tempo, lower volume and familiar music results in subjects staying marginally longer at a venue than when the tempo or volume are high, or the music less familiar.
- A higher volume and tempo, and the less liked the music, the longer customers perceive time duration. This has most implications for waiting customers.
- Tempo has the greatest effect on arousal (Garlin and Owen, p. 761).

It is clearly important from the psychological point of view to try to establish the theoretical explanations for these and other effects, and we make a start on this in the next section, which leads on to a new proposal from some recent research that listener's *dominance* and *control* over the music to which they listen has a strong influence on their responses to it, given the diversity of music listening in the digital age. We then undertake a brief review, largely based on our own work, of three main areas of research on music and consumer behavior, namely that on the perception of the commercial environment, on product choice and "musical fit," and on the speed of activity and time perception.

## RECENT RESEARCH ON CONSUMER BEHAVIOR: THEORETICAL EXPLANATIONS

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In the preface to *The Social Psychology of Music* (Hargreaves and North, 1997), we argued that:

The many and varied ways in which people create, perform, perceive, and react to musical sounds are vitally dependent on the particular situations in which they do so. This includes the specific places, times, and other people present in those situations, as well as the broader historical and cultural context of musical behaviour. Surprisingly little attention has been paid to this aspect of music psychology, and this book attempts to redress the balance. (p. v)

There can be little doubt that this balance has indeed been redressed in the intervening years, and that the social psychology of music has advanced to the extent that we were able to attempt to characterize what we called the *applied* psychology of music in our subsequent book, *The Social and Applied Psychology of Music* (North and Hargreaves, 2008). This included extended reviews of research on "music and advertising" and "music in commercial environments," and the number of studies reviewed clearly shows the extent to which this has become a recognized part of music psychology, alongside other "applied" areas such as health, education, criminality, and the media.

We have ourselves conducted a number of empirical studies on the effects of music in different commercial settings, and we will mainly focus on these in this chapter. Apart from the obvious practical implications of research in this field, however, we think it is important that psychological research should drive forward the theoretical agenda. In the original version of this chapter, in 2009, we identified three main psychological processes that underlie many effects. The first of these was the effect of music on physiological arousal: several studies have argued that faster music speeds up customer activity, and this is linked with evidence from experimental aesthetics that relates musical tempo to activity in the autonomic nervous system, which in turn refers back to Daniel Berlyne's psychobiological approach (e.g., Berlyne, 1974).

The second process concerns the ability of music to prime certain thoughts and associations, and several specific variations of the theory have been proposed (e.g., Hansen and Hansen, 1990; Hargreaves, Hargreaves and North, 2012; Martindale and Moore, 1989; North, Hargreaves, MacKenzie and Law, 2004), which all deal with the question of how specific pieces of music can activate different “networks of association” which individual listeners have built up over their listening lives: these form part of what Folkestad (2012) calls “personal inner musical libraries” and the networks can be musical, cultural, or personal. The third and final process is that music can also influence consumers through its emotional effects, and this can manifest itself in many different ways, most of which involve some aspect of the emotional response to music having a subsequent influence on the processing of commercially relevant information.

These three explanations—arousal-based effects, priming effects, and the impact of emotion on behavior—have of course been central to many areas of experimental psychology over its history. For example, classic research on skilled performance (e.g., Yerkes and Dodson, 1908) focused on how the arousal and information-processing load evoked by a stimulus can mediate performance across numerous domains; and similarly, one of the central tenets of social cognition is that each new stimulus is processed in the light of stimuli encountered previously, such that responses to the latter prime responses to the former. Furthermore, large sections of social psychology (e.g., prosocial behavior, environmental psychology) have considered the impact of emotional states on the ways in which people behave in everyday situations. Since arousal-, priming-, and emotion-based effects have such fundamental relevance to a range of human behaviors and can all result from hearing music, it should not be surprising that they might influence a broad range of consumer behaviors.

## Dominance and Control

Since the original version of our chapter was published, however, a fourth explanatory mechanism has emerged in some of our more recent research and thinking, and this originates from Mehrabian and Russell’s (1974) model of environmental psychology (M-R), which characterizes responses to environments in terms of approach and avoidance behaviors. The central idea is that environmental cues influence people’s emotional states (e.g., degrees of pleasure or arousal) which then result in approach or avoidance behaviors. There are four of these: (1) a desire to physically stay in (approach) or to leave (avoid) the environment, (2) the desire or willingness to look around and explore the environment (approach) versus a tendency to avoid moving through or interacting with it (avoidance), (3) the desire or willingness to communicate with others in the environment (approach) or to avoid interacting with others or to ignore communication attempts from them (avoidance), and (4) or the enhancement (approach) or hindrance (avoidance) of satisfaction with tasks performed. Whether or not individuals decide to approach or avoid different aspects of the environment depends on their emotional response to it, and this in turn can be explained in terms of three different dimensions, namely pleasure, arousal, and dominance.

We have already discussed pleasure and arousal in our previous discussion, but our own attention has shifted toward the meaning and implications of the notion of *dominance* in our more recent work, and in particular in that which has been carried out by Amanda Krause. She has performed a series of studies, reviewed in the following paragraphs, which

demonstrate the importance of choice and control. In the M-R model, dominance represents the degree to which the listener has control over the listening situation. This was of little interest in the 1970s and 1980s and to some extent in the 1990s because most listeners had little or control over the music to which they listened, but with the gradual emergence of today's wide range of digital listening technologies which can be controlled by individuals, music has become increasingly prevalent, and control over our auditory environments has increased commensurately. Following the M-R model, Krause argues that dominance (i.e., control) should lead to more positive listening experiences. Whether or not this is because it leads to approach behaviors, that is, willingness to interact with the environment, or on the other hand because it can also serve to isolate individuals from their environment, and reduce the necessity of interacting with it, remains an open question.

Krause's doctoral research has led to a series of three publications, all of which are based on the data from a study utilizing the experience sampling method (ESM), first described by Csikszentmihalyi and Lefevre (1989), in which people's everyday experiences are sampled in different ways at random intervals over a particular time period. One hundred and seventy-seven participants were sent two text messages per day at random times between 08:00 and 23:00 for 1 week, and were asked to complete online self-reports about their experiences with any music heard within the 2-hour period before receipt of each message. They were asked to make ratings of the music in terms of choice, liking, level of arousal, attention, mood, and the perceived consequences of the music.

The first study (Krause, North and Hewitt, 2015) focused on the devices on which music was played, and on the level of choice that listeners perceived that they had. The results showed that listening to the radio or to recorded music broadcast in public (low control) led to feelings of lethargy, but that listening to one's own personal music collection on MP3 players or personal computers (high control) promoted contentment and further motivation to listen. The new technology allows increased choice and control over what music people can listen to, and how this can be integrated into their everyday lives, which leads to the general conclusion that listeners are active consumers rather than passive ones. (This also coincides with the view of listening as a creative musical activity put forward by Hargreaves, Hargreaves, and North (2012).)

The second study (Krause, North and Hewitt, 2014a) looked in more detail at the ways in which listeners reported selecting the music. Thirteen different selection methods were identified (listen to the radio, I did not have any control, specific album, random/shuffle, personal premade playlist, specific artist, someone I was with chose, watched TV, specific song, it was performed live at the time, pre-made playlist—by someone else, website streaming, other) in relation to the 12 devices listed in the previous study (mobile MP3 player, mobile phone, mobile CD, own computer, computer-stream, computer-cloud, stereo MP3 device, stereo CD, radio, TV, in public—live, in public—recorded). As predicted, the results showed that selection methods for which individuals perceive that they had control gave rise to positive reactions to the music, including enjoyment and motivation, whereas negative responses were associated with listeners' feelings that they were not able to exert control.

The third study (Krause, North and Hewitt, 2014b) shifted the focus to the nature of the locations within which music was heard and how it was heard. The study identified 11 locations in which people have reported frequently listening to music (at home, driving a car, at work, on public transport, in a car, other, at a friend's house, walking, at the gym, restaurant, and the pub/club), and the results supported the hypothesis that people's reactions to

music in everyday life are influenced by the characteristics of the listening context. However, context includes more than simply location. This was evident when distinguishing between private and public locations (e.g., spaces at home, or in a shop or a restaurant): it would be expected that the degree of control that the listener was able to exert would differ, and the prediction was that music heard at home (private location) would be liked more and given more attention than that encountered in public situations in which people felt less dominant or in less control. In public, considering the device is important, as people's use of mobile listening devices allows them to exert control. Thus, context includes location and also the device through which music is played, thereby supporting the M-R view that dominance can be important, and that listener control may well be an index of this.

Overall, these results give strong support for the notion that individual choice of music exerts a strong influence over the ways in which one perceives it. This is in line with findings from the field of music, health, and well-being, in which it is now well established that control of music affects feelings of well-being and health, and in particular people's reactions to stressors and physical pain (see, e.g., Mitchell, MacDonald, Knussen and Serpell, 2007). A recent study of 229 Canadian late adolescents (age 17–21) by Morinville, Miranda, and Gaudreau (2013) tested what the authors called a "self-determination model" which predicted that self-determined motivation for music listening should be linked to "global happiness," which was operationally defined in terms of "subjective well-being," as measured by a number of psychometric measures. The results suggested that young people reported higher levels of subjective well-being when they listen to music for autonomous or self-determined reasons such as because it is inherently pleasurable or personally meaningful: this provides further support for the findings from Krause's research, and for the M-R model.

## PERCEPTION OF THE ENVIRONMENT

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### Visiting

North and Hargreaves (1996a) investigated whether music could influence whether people would approach or avoid a particular environment. We set up an "advice stall" in an on-campus cafeteria, with leaflets offering advice on a range of typical student welfare issues such as safe sex, recommended maximum levels of alcohol consumption, how to find good housing, and so on. From the stall we played pop music of three levels of complexity, representing the extent to which the music is erratic, varied, and difficult to predict: studies in experimental aesthetics (see Berlyne, 1971) suggest that moderately complex music should be liked most, whereas that of low and high complexity should be less popular.

We measured the impact of the music on the number of people visiting the stall in two ways. First, diners in the cafeteria were asked to complete a questionnaire asking them to state how likely they were to visit the stall, and the results suggested that their likelihood of visiting the stall was not influenced by the music. However a behavioral measure of visiting produced a very different conclusion. On the floor, about 1 meter from the stall, were a series of small stickers that marked the boundary of an "approach zone." People were counted as having visited the stall if they put one foot inside this zone and took another step toward



the stall. When moderately complex pop music was played, 10.71 people visited the stall every 10 minutes, and this was significantly more than when no music (4.01 people) and high-complexity pop music (3.67 people) was played.

This suggests that people tended to visit the physical source of liked music, such that playing liked music in a shop, for instance, would encourage customers to enter the premises. The effect of the no-music condition relative to the moderate- and high-complexity pop was also interesting, in that playing liked music was better at attracting people to the stall than playing nothing, whereas playing disliked music was worse than playing nothing. The practical question facing practitioners seems to be “What is the right kind of music to play?” rather than “Should I play music or not?” These findings show that complexity is one of the variables that allow managers to determine what the “right” kind of music is: the determinants of musical preference derived from the lab can be applied in commercial premises to produce music that customers like. Indeed, when completing the questionnaire diners were asked to say how much they liked the music (see North and Hargreaves, 1996b), with data showing that moderately complex music was most popular. Diners’ answers to the questionnaire also showed, however, that the more they disliked the music so the more noticeable it became, and this may well explain the negative stereotype that the general public holds about piped music.

## Store Image and Purchasing

North and Hargreaves (1998) used a priming-based approach to investigate the effect of music on the atmosphere or “image” of a store and also actual purchasing. We returned to the same cafeteria that we used in the “visiting” study, described in the previous subsection, and this time played different musical styles. Pop music, classical music, easy listening music (that based on the “sweeping strings” stereotype of piped music), and no music were played over 4 days, and customers were asked to complete a questionnaire on which they were asked to rate the atmosphere in the café according to 20 different adjectives, and were given a list of 14 items on sale in the café (such as a can of Diet Coke, a slice of vegetarian pizza). They were asked to say the *maximum* that they would be prepared to spend on each item in turn.

Different musical styles gave rise to very different “atmospheres.” Pop music led to the perception that the café was lively and youthful, and classical music led to the perception that the café was upmarket and sophisticated, whereas the stereotypical piped music led to the perception that the café was downmarket. Furthermore, when no music was played, customers were prepared to spend a total of £14.30 on the 14 items, as compared with £14.51 when stereotypical piped music was played, £16.61 when pop music was played, and £17.23 when classical music was played. Even though the customers were all students who would be expected to prefer pop music over classical music, it seemed that they as customers were tapping in to the atmosphere portrayed by the music and acting accordingly.

We followed up this study in a restaurant in the town of Market Bosworth in Leicestershire, UK (North, Shilcock and Hargreaves, 2003). Classical music, pop music, and no music were played over 3 weeks, and customers’ spending seemed to be influenced by the apparent effects of the music. When classical music was played, customers spent £32.52 on average, whereas when pop music was played customers spent £29.46, and when no music was played customers spent £29.73. Since the restaurant management, quite understandably, did

not want us to approach customers, we were unable to measure their degree of liking for the music and rule this out as an explanation for the results. However, the positive effects of classical music on spending were particularly strong in the case of starters and coffee, that is, for those items that customers could have avoided while nonetheless being able to tell themselves that they had “gone for a meal out.” Did they spend more on starters and coffee because the classical music made them feel more affluent?

More recently, we have carried out two studies that have attempted to identify the extent of the effect of music on consumers’ reactions. The first of these drew on existing research concerning the effects of nonmusical auditory stimuli on taste. For example, Zampini and Spence (2004) found that potato chips were rated as tasting significantly fresher (or instead staler) when the sound made when biting into them was louder (or instead quieter) or even when only frequencies above 2 kHz were amplified (or instead attenuated); and several other studies show that discontinuous or uneven sounds made by foodstuffs during their consumption influences perception of how “crispy” they are (e.g., Vickers and Wasserman, 1979). Consistent with this, North (2012) offered participants a glass of wine which they drank while music played in the background that was pre-selected as “powerful and heavy,” “subtle and refined,” “zingy and refreshing,” or “mellow and soft.” Subsequent ratings of the taste of the wine indicated that this had been influenced in the direction of the emotions symbolized by the music. In short, music can influence commercially relevant responses in other sensory domains. A second study (North, Hewitt and Dzidic, 2014) took a similar approach in attempting to influence perceptions of orange juice. Music from differing countries was able to influence the perceived country of origin of the juice. However, more interesting is that playing participants a “nature soundtrack” influenced perceptions of the flavor of the juice, its likely cost, whether the oranges were genetically modified or grown organically, as well as beliefs about the health outcomes of consuming orange juice.

## PRODUCT CHOICE AND “MUSICAL FIT”

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It is very clear from the previous section that music can have a powerful influence on customers’ impressions of commercial environments, and the match between the music and the products being sold has been described as “musical fit,” and has been studied by several researchers in recent years. For example, Areni and Kim (1993) played classical music and pop music in a wine cellar, and found that although the two different types of music did not lead to customers buying any more wine, classical music led to customers buying more *expensive* wine: they argued that this was because the classical music primed customers to feel more affluent and to act accordingly.

North, Hargreaves, and McKendrick (1997, 1999a) also used a priming-based approach to investigate the effects of musical fit on product choice. We used an aisle-end display in a local supermarket that featured several French and German wines. Each shelf on the display featured a different French wine and a matched German wine, the two wines on that shelf were “matched” in terms of their degree of “dryness,” and their approximate price. In other words, the main distinction between the two types of wine on each shelf was the country of origin. On alternate days, a small tape player on the top shelf of the display this played music that was either stereotypically French or German music: the “French music” featured accordions,



as well as other stereotypically “French” features, whereas the “German music” featured an oompah band performance of songs concerning, among other issues, the pleasures of drinking white wine on the Rhine. The display was in view of the checkouts, and we sat behind these, next to a taxi phone, with carrier bags full of shopping to create the impression that we were ordinary customers waiting for our taxi to arrive. In fact we were observing the number of bottles of wine sold.

The results were consistent with the notion of musical fit. On the days when French music was played, French wine outsold German by five bottles to one, whereas on the days that German music was played, German wine outsold French by two bottles to one. We investigated this further using a questionnaire. Once customers left the wines section they were approached by one of us, who asked them to state whether the type of wine they had bought had been influenced by the music that was playing. The sales data predict that they should answer that it had been. Unfortunately, only 44 customers agreed to answer this question: although the sales data indicated that wine choices had been influenced by the music, only one customer was prepared to admit this on the questionnaire.

These findings clearly suggest that musical fit can influence product choice as well as spending. The difference between actual wine sales and responses to the questionnaire also suggest that the customers may well have been unaware of the effect of musical fit on their behavior. If this were to have been the case, it would of course have serious ethical implications (and indeed one national newspaper headline at the time claimed that psychologists had discovered a way of making consumers buy things that they didn’t want). We suspect, however, that this result has a far more mundane explanation. Since the music played from our display was only very crudely representative of French and German music, it is perhaps not surprising that when questioned by a university researcher mid-way through a shopping trip, people would not be prepared to say, in effect, that “all it took to get me to buy French wine was a bit of music played from a tinny speaker.” They were much more likely to tell the researcher, in effect, that “no, I was not influenced, and I can assure you that I always buy this variety of wine.”

In other words, the music probably worked in the same way as might a notice placed by the entrance, advertising the fact that French (or German) products were on sale and thereby raising their salience. Indeed, we would argue further that the effects of musical fit will probably occur only under conditions where customers are otherwise undecided about which course of action to take. One phenomenon which operates in everyday choice situations such as this is people’s use of *heuristics*, and in particular the *recognition heuristic* (see, e.g., Goldstein and Gigerenzer, 1999, 2002). Research on this phenomenon has shown that if only one of several alternatives is recognized (e.g., in a supermarket display), then the recognized alternative will be chosen (see Yeoh and North, 2010), whereas if more than one of the items on display are recognized, recognition cannot be used as a cue, and that other cues (such as musical fit) come into play.

## Musical “Fit” in Advertising

If musical fit operates by raising the salience of ideas related to the music, then this greater salience ought to have implications for memory. North et al. (2004) studied musical fit in radio advertising. We reasoned that if music in the adverts “fitted” with the advertised

product, then raising the salience of the product should enable the music to help people to remember it. We prepared radio adverts for five brands: an online bank, a people carrier, a bathroom cleaner, a chocolate bar, and an energy (i.e., high-sugar) drink. On top of the voiceover in each advert we played music that either did or did not fit with the characteristics of each brand. After hearing the adverts, people were asked to read a short story, and were then asked to recall what they had heard. Recall was indeed higher when the adverts had featured music that “fitted” the advertised product. This is consistent with the notion that musical fit had primed listeners’ thinking, such that this priming aided recall.

## SPEED OF ACTIVITY AND TIME PERCEPTION

A great deal of research has been carried out in psychological as well as in consumer and business research on the effects of music on the speed with which customers behave, and on the impact of music on time perception.

Several studies indicate that the speed of customer activity is related positively to the tempo and volume of background music. Many researchers have drawn on the findings of research in experimental aesthetics from the 1960s and 1970s (e.g., Berlyne, 1971) which argued that louder or faster music led to greater levels of physiological arousal, whereas slower or quieter music led to correspondingly lower levels of arousal. Milliman (1982), for example, found that slow music led to supermarket customers shopping 15% more slowly than when fast music was played. Customers in the “slow music” condition also spent around 33% more money, and this is probably because the act of shopping more slowly also gave customers more opportunity to browse a range of products. Smith and Curnow (1966) produced similar results when they manipulated musical volume rather than tempo in a supermarket: customers spent less time in the store when loud music was played than when soft music was played, although there was no difference between the amounts of money spent in the two conditions. Milliman (1986) studied 1392 groups of restaurant customers over 8 weekends, and found that slow music led to customers eating more slowly, completing their meal in only 56 minutes on average as compared with 45 minutes when fast music was played. This also affected spending: customers in the slow music condition, who ate more slowly, ending up spending more money on drinks (\$30.47 as compared with \$21.62 in the fast music condition). Roballey et al. (1985) similarly found that fast music playing in a cafeteria led to an average of 4.40 bites per customer per minute, whereas slow music led to only 3.83 bites per minute.

Effects such as these highlight the idea that almost all uses of music in commercial environments reflect a “trade-off” in which practitioners must decide what types of music they want to use in order to achieve specific commercial gains. In this case, there is a clear trade-off between the speed of customer activity and spending: it is in the café manager’s interest to play fast music at busy times when most tables are occupied, increase the turn-around of customers, and therefore maximize profit, whereas at quiet times when the café is empty, it makes more sense to play slower music in the hope that customers will spend more money on their meals.

The second topic that has received considerable research attention has concerned the possible impact of music on time perception, and there are numerous, slightly differing,

explanations of this effect. Common to many of them is the notion, drawn from mainstream research on time perception, that the perception of the passage of time is related to the amount of information encoded during the period in question. This explanation states that the mind invokes a heuristic to the effect that “if more has happened then more time must have passed.” Research using this approach has suggested, for example, that louder music should lead to the perception of more time having passed: louder music imposes a greater information-processing load, and this leads people to believe that more has happened, and therefore that more time has passed (e.g., Kellaris and Altsech, 1992). Another version of this argument is that if music imposes a greater processing load on the listener (e.g., by being loud, fast, or complex), this distracts attention from an internal cognitive timer that monitors the passage of time. Other research has gone on from this point and related time perception to whether or not people like the music they hear. If we assume that people pay more attention to stimuli that they like, then liked music should impose a greater information-processing load, and thus lead to the perception that more time has passed (e.g., Kellaris and Mantel, 1994). Although there is evidence to support these arguments, clear theoretical predictions have unfortunately not led to clear-cut findings.

## CONCLUSION

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The findings reviewed in this chapter provide positive initial signs that music can have a wide range of positive commercial benefits. Music can influence the places that customers go to, the atmosphere of these commercial premises, the amount that customers are prepared to spend in them, the amount that they actually spend, the products they buy, their memory for advertising, and various other perceptions and beliefs concerning related products. These effects seem to be based on fundamental psychological processes concerning arousal, cognitive priming, and the effects of emotions on behavior, and the degree of dominance and control that people exert over their music listening is also becoming increasingly important, though the impact of this has so far been largely on private listening rather than on listening in commercial environments.

The research described here highlights an important issue for practitioners. If music can have so many different effects, it is important to prioritize those that correspond best with the business's marketing goals. There can be no single “right” type of music for all commercial environments: the key issue is how to select music that addresses the most important marketing goals for each individual setting. The corollary of this is that it is probably impossible to devise a detailed model of all the characteristics of the music, the customer, and of the commercial environment, and to assess how all of these interact in making a given spending decision. The typical customer is engaged in a complex decision-making task, in comparing at least two alternative products along numerous cognitive and social psychological dimensions (price versus benefit, product quality, relevance to self-concept, prevailing fashions, etc.). Some of these dimensions will only have become salient very recently, whereas others will have been evaluated in detail over extended periods of time as a result of prior experience of the products, advertising, or the opinions of friends, for example. Nevertheless, this chapter has been able to set out what we know so far about the basic elements of these complexities, and to point the way ahead toward some fruitful new directions.

## 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.
- Behne, K.-E. (1999). On a theory of the non-impact of background music. In K.-E. Behne, G. Kleinen and H. de la Motte-Haber (Eds.), *Musikpsychologie: Jahrbuch der Deutschen Gesellschaft für Musikpsychologie*, 14 (pp. 7–23). Göttingen: Hofgreve-Verlag.
- Berlyne, D.E. (1971). *Aesthetics and psychobiology*. New York: Appleton-Century-Crofts.
- Berlyne, D.E. (Ed.) (1974). *Studies in the new experimental aesthetics: Steps toward an objective psychology of aesthetic appreciation*. New York: Halsted Press.
- Csikszentmihalyi, M. and Lefevre, J. (1989). Optimal experience in work and leisure. *Journal of Personality and Social Psychology*, 56, 815–822.
- Folkestad, G. (2012). Digital tools and discourse in music: the ecology of composition. In D.J. Hargreaves, D.E. Miell and R.A.R. MacDonald (Eds.), *Musical imaginations* (pp. 193–205). Oxford: Oxford University Press.
- Garlin, F.V. and Owen, K. (2006). Setting the tone with the tune: a meta-analytic review of the effects of background music in retail settings. *Journal of Business Research*, 59, 755–764.
- Gold, C., Voracek, M. and Wigram, R. (2004). Effects of music therapy for children and adolescents with psychopathology: a meta-analysis. *Journal of Child Psychology and Psychiatry*, 45, 1054–1063.
- Goldstein, D.G. and Gigerenzer, G. (1999). The recognition heuristic: how ignorance makes us smart. In G. Gigerenzer, P.M. Todd and the ABC Research Group (Eds.), *Simple heuristics that make us smart* (pp. 37–58). New York: Oxford University Press.
- Goldstein, D.G. and Gigerenzer, G. (2002). Models of ecological rationality: the recognition heuristic. *Psychological Review*, 109, 75–90.
- Hansen, C.H. and Hansen, R.D. (1990). Rock music videos and antisocial behavior. *Basic and Applied Social Psychology*, 11, 357–369.
- Hargreaves, D.J., Hargreaves, J.J. and North, A.C. (2012). Imagination and creativity in music listening. In D.J. Hargreaves, D.E. Miell and R.A.R. MacDonald (Eds.), *Musical imaginations* (pp. 156–172). Oxford: Oxford University Press.
- Hargreaves, D.J. and North, A.C. (Eds.) (1997). *The social psychology of music*. Oxford: Oxford University Press.
- Kämpfe, J., Sedlmeier, P. and Renkewitz, F. (2011). The impact of background music on adult listeners: a meta-analysis. *Psychology of Music*, 39(4), 424–448.
- Kellaris, J.J. and Altsech, M.B. (1992). The experience of time as a function of musical loudness and gender of listener. *Advances in Consumer Research*, 19, 725–729.
- Kellaris, J.J. and Mantel, S.P. (1994). The influence of mood and gender on consumers' time perceptions. *Advances in Consumer Research*, 21, 514–518.
- Krause, A.E., North, A.C. and Hewitt, L.Y. (2014a). Music selection behaviors in everyday listening. *Electronic Media*, 58, 2, 306–323.
- Krause, A.E., North, A.C. and Hewitt, L.Y. (2014b). The role of location in everyday experiences of music. *Psychology of Popular Media Culture*, Advance online publication. doi:10.1037/ppm0000059.
- Krause, A.E., North, A.C. and Hewitt, L.Y. (2015). Music-listening in everyday life: devices and choice. *Psychology of Music*, 43(2), 155–170.
- Martindale, C. and Moore, K. (1989). Relationship of musical preference to collative, ecological, and psychophysical variables. *Music Perception*, 6, 431–455.

- Mehrabian, A. and Russell, J.A. (1974). *An approach to environmental psychology*. Cambridge, MA: MIT Press.
- Milliman, R.E. (1982). Using background music to affect the behavior of supermarket shoppers. *Journal of Marketing*, 46, 86–91.
- Milliman, R.E. (1986). The influence of background music on the behavior of restaurant patrons. *Journal of Consumer Research*, 13, 286–289.
- Mitchell, L.A., MacDonald, R.A.R., Knussen, C. and Serpell, M.A. (2007). A survey investigation of the effects of music listening on chronic pain. *Psychology of Music*, 35, 39–59.
- Morinville, A., Miranda, D. and Gaudreau, P. (2013). Music listening motivation is associated with global happiness in Canadian late adolescents. *Journal of Aesthetics, Creativity and the Arts*, 7(4), 384–390.
- North, A.C. (2012). The effect of background music on the taste of wine. *British Journal of Psychology*, 103, 293–301.
- North, A.C. and Hargreaves, D.J. (1996a). The effects of music on responses to a dining area. *Journal of Environmental Psychology*, 16, 55–64.
- North, A.C. and Hargreaves, D.J. (1996b). Responses to music in a dining area. *Journal of Applied Social Psychology*, 24, 491–501.
- North, A.C. and 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. and Hargreaves, D.J. (2008). *The social and applied psychology of music*. Oxford: Oxford University Press.
- North, A.C., Hargreaves, D.J., MacKenzie, L. and Law, R. (2004). The effects of musical and voice “fit” on responses to adverts. *Journal of Applied Social Psychology*, 34, 1675–1708.
- North, A.C., Hargreaves, D.J. and McKendrick, J. (1997). In-store music affects product choice. *Nature*, 390, 132.
- North, A.C., Hargreaves, D.J. and McKendrick, J. (1999a). The effect of music on in-store wine selections. *Journal of Applied Psychology*, 84, 271–276.
- North, A.C., Hewitt, L. and Dzidic, P. (2014). Concurrent audio, taste perceptions, and consumer attitudes concerning orange juice. Manuscript submitted for publication.
- North, A.C., Shilcock, A. and Hargreaves, D.J. (2003). The effect of musical style on restaurant customers’ spending. *Environment and Behavior*, 35, 712–718.
- Roballey, T.C., McGreevy, C., Rongo, R.R., Schwantes, M.L., Steger, P.J., Wininger, M.A. and Gardner, E.B. (1985). The effect of music on eating behavior. *Bulletin of the Psychonomic Society*, 23, 221–222.
- Smith, P.C. and Curnow, R. (1966). “Arousal hypothesis” and the effects of music on purchasing behavior. *Journal of Applied Psychology*, 50, 255–256.
- Standley, J. (1996). A meta-analysis on the effects of music as reinforcement for education/therapy objectives. *Journal of Research in Music Education*, 44, 105–133.
- Vickers, Z.M. and Wasserman, S.S. (1979). Sensory qualities of food sounds based on individual perceptions. *Journal of Texture Studies*, 10, 319–332.
- Yeoh, J. and North, A.C. (2010). The effect of musical fit on consumers’ memory. *Psychology of Music*, 38(3), 368–378.
- Yerkes, R.M. and Dodson, J.D. (1908). The relation of strength of stimulus to rapidity of habit-formation. *Journal of Comparative Neurological Psychology*, 18, 459–482.
- Zampini, M. and Spence, C. (2004). The role of auditory cues in modulating the perceived crispness and staleness of potato chips. *Journal of Sensory Science*, 19, 347–363.