

Implicit and Explicit Effects of Music on Brand Perception in TV Ads

Daniel Müllensiefen¹, Christopher Davies², Lauri Dossman²,
Jon Ludvig Hansen¹, Alan Pickering²

1 Department of Psychology, Goldsmiths, University of London
2 DDB UK

Key words

Music in advertising, advertising pre-testing, implicit association test, semantic differential

Abstract

The paper describes a novel empirical method for matching music to consumer brands based on Asmus' (1985) semantic differential for music. In Exp. 1 the method is applied to the selection of congruent and incongruent music for four TV ads for a juice brand. Exp. 2 measures the effect of the two types of music as well as silence on the persuasiveness of the ads by an effectiveness index derived from an advertising pre-testing questionnaire as well as by change in implicit attitudes towards the brand measured by reaction time in an Implicit Association Test (IAT). Congruent music significantly enhanced the effectiveness of at least one tested ad and in addition, the IAT test showed significantly positive attitudes towards the brand. However, no significant changes in implicit attitudes were found due to the influence of the music.

1. Introduction

Pre-testing advertisements is standard in modern marketing but there has been little research directly assessing the effectiveness of the various sensory components of an advert, including any music used. This paper addresses this lack of research. In the first part of the paper we describe the development of a new tool based on Asmus' Semantic Differential (1985) for assessing the fit of individual music pieces to the profile of a given brand and how this tool can be used to select music that maximises brand fit. In the second part we evaluate the effects of music, that is congruent or incongruent with the brand profile, on the perception of different TV commercials for the same brand. As evaluation techniques we use an industry-standard questionnaire asking explicitly for participants' judgements, as well as an adaptation of the Implicit Association Test (Greenwald, McGhee, & Schwartz, 1998) to assess implicit attitudes towards the brand. Hence, part two of this paper evaluates whether the 'best-fit' music identified in part one actually enhances brand perception, and explores whether the effects of music can be seen both implicitly and explicitly.

1.1 Music in advertising

Music is widely used in adverts (Stewart & Koslow, 1989; Applebaum & Haliburton, 1993) and the trade journal Admap claimed in 2003 that music can help to gain attention, create desired moods, change the pace of an advertising narrative, and facilitates brand and message recall. Academic research since Simpkins and Smith (1974) has confirmed this belief (see review in North & Hargreaves, 2008), and has elicited various theoretical accounts (e.g. Gorn, 1982; MacInnis & Park, 1991).

1.2 Assessing the fit between music and brands

MacInnis & Park (1991) suggested that music aids the processing and perception of ads when the 'fit' between product/brand and music is high: i.e. if music matches the message of an ad (cf. non-message-matched music) it will have predictable effects on the processing of an

advert. Hung (2001) suggests that congruent music might reduce semantic noise and set a stronger focus on the cultural context and communicative meaning of the ad. The notion of musical fit thus appears to enhance the message of an advert, fostering positive purchase intentions and attitudes towards the product advertised.

While the theoretical notion of musical fit has an intuitive appeal and is supported by a good amount of empirical evidence (e.g. Hung, 2001; Zander, Apaolaza-Ibañez, & Hartmann, 2010), the general problem of measuring the fit between a piece of music and a brand has not been satisfactorily resolved. The solution we suggest here is based on the assumption that the main mechanism that connects music with advertised brands or products is affective processing. We therefore used an established instrument for the measurement of the affective content of music and adapted it to assess the emotional profile of a commercial brand. Distance and closeness (“fit”) between an arbitrary number of music tracks and a brand can then be measured by standard methods using the same dimensional space.

Asmus (1985) devised a multi-dimensional measurement tool for assessment of musical affect, based on the semantic differential (SD) technique developed by Osgood, Succi, and Tannenbaum (1957). The SD involves rating a given stimulus over a wide range of different attributes. In an experimental session, individuals rate the extent to which they consider each term to be an appropriate description of a particular stimulus. Asmus (1985) compiled a selection of adjectives deemed appropriate for describing a wide range of affective responses for music. After repeated factor analysis, he identified 3 individual factors.

The 3 broad factors were termed ‘vibrancy’, ‘morose’ and ‘serenity’. Each of these dimensions was divided into 3 sub-dimensions. Several studies have reported successful use of this 9-dimension measurement tool (Coffman et al., 1995; Miller & Strongman, 2002). In experiment 1 we use Asmus’ semantic differential to measure the multi-dimensional profile of a range of musical pieces as well as profile of a widely-known juice brand and subsequently identify the pieces with a minimal distance (i.e. optimal fit) to the brand.

2. Experiment 1

2.1 Method

The aim of this experiment was to determine the effectiveness of a semantic differential technique based on a pre-determined factor structure in terms of its ability to differentiate between different musical soundtracks. This effectiveness is gauged in two different ways: A) Whether or not songs that were originally determined to be congruent with the brand profile of a chosen fast-moving-consumer-goods (FMCG) brand were *more* congruent than possible alternatives, or indeed congruent at all and b) whether or not the semantic differential technique works equally well with individuals of differing levels of musical sophistication and across genders.

Four TV ads for the chosen orange juice brand from the last 10 years were selected. Each had been at the centre of a large advertising campaign and had been broadcast on UK television for at least several weeks. Each ad had an original music soundtrack of about 40 seconds that was clearly audible and with the exception of a spoken sentence in the last five seconds that was identical in all four ads. The soundtrack did not contain any speech. Each campaign used a very different theme/narrative but all campaigns were created to convey the same image of the juice brand that had been unchanged over the last 10 years.

For the derivation of the brand profile six members of staff from DDB UK, who had been working as account managers or account planners for the juice brand for several years, scored the brand on the 7-point rating scale of the 39 adjective items of the semantic differential.

For each ad, three alternative tracks were selected to match the original soundtrack in style, genre, instrumentation and, if possible, performing artist, with regard to its affective content. The alternative tracks were chosen according to the 3-factor structure of semantic differential (one track for each of the three dimensions), giving a bank of sixteen songs altogether. Selection of the alternative tracks was based on the musical expertise of three of the authors, but each track was unanimously agreed upon. From each, a 40s excerpt was extracted to match the length of the original soundtrack.

Participants were recruited mainly online, and covered a wide range of nationalities. Altogether there were 185 respondents (96 females, 89 males). Their ages ranged from 18 to 84 years ($M = 30.15$, $SD = 12.13$). Most participants rated four randomly selected songs on the semantic differential (although a small number of participants gave between one and three responses). On each of the four trials, the participants' task was to listen to the music clip and to imagine that the music would portray a film character. Then, they were instructed to rate the film character on the 39 adjectives of the semantic differential. The fit of each song to the juice brand was then calculated in terms of the Euclidean distance of each song from the brand profile. These Euclidean distance measurements were based on each song's scores on each of the 3 factors and the distances of these scores from the consensus brand image scores generated by the advertising professionals.

2.2 Results

The juice brand loaded heavily on the vibrancy factor, but also the serenity factor (average scores of 51.25 and 48.75 respectively). The overall score on the morose factor was, as expected, comparatively low (15.25). Ratings from online participants were averaged across all 16 songs. Euclidean distances across the 3 dimensions were then calculated between the profile of each individual song and the juice brand profile. The original soundtracks as well as the alternative tracks loading high on vibrancy were always significantly closer to the brand profile than the songs loading high on the morose and serenity dimensions (all p 's < .05).

For assessing the general suitability of the semantic differential for a wide audience we performed k-means cluster analysis and divided the participants into two groups according to their musicality level. Paired samples t-tests showed no significant difference between the ratings of either group on any of the three dimensions according to musicality, nor were there any significant differences between the two genders.

2.3 Discussion

As indicated by the results, the semantic differential method was able to differentiate between songs in terms of their distance from a desired brand profile. In addition, the participants' judgements on the semantic differential indicated that the original songs, as well as the songs assumed to load high on the vibrancy factor associated with the juice brand, had clearly the lowest distance from the brand profile. This confirms our initial hypothesis and indicates the face validity of the semantic differential as a research tool. In sum, this technique allows advertisers to determine where a particular soundtrack lies in a three-dimensional semantic space relative to a desired brand image. This helps advertising practitioners to match music and brand as closely as possible, so as to ensure congruency during an advertisement. The semantic differential used here also seems widely applicable in that there were no significant differences between individuals of different levels of musicality and gender.

3. Experiment 2

While experiment 1 demonstrated the usefulness of the semantic differential to distinguish and select music pieces with respect to a target brand, the purpose of experiment 2 is to investigate whether a small distance between brand and musical pieces does indeed help the effectiveness of a TV advert in terms of attitude changes.

By far the most common way of (pre-)testing ad effectiveness is to use standardised questionnaire instruments where question items index features of the advert such as persuasion, brand/product awareness (Brown, 1986), engagement, enjoyment etc. Usually, data norms for ads from the same product category are available for comparison and are used to interpret the effectiveness of an ad in absolute terms. For the purpose of this experiment we are using a generic questionnaire that was modelled on several questionnaire instruments currently in use by market research companies. We will refer to this method as the 'explicit testing procedure' as participants are asked explicitly about their perception of the ad.

However, there seem to be limits to the applicability of explicit questionnaire instruments (Feldwick, Carter, & Cook, 1991), especially in situations where people are either not aware of their own attitudes or are incapable of assigning verbal statements for explaining their behaviour or where judgements are assumed to be distorted by subjective beliefs and biased introspection (Nisbett and Wilson, 1977). However, many tests have been developed to reveal preferences and attitudes without relying upon explicit and conscious judgement formation (Schacter, 1989). As an alternative to the generic explicit pre-testing questionnaire, we chose to employ an adaptation of the Implicit Association Test (IAT; Greenwald, McGhee, & Schwartz, 1998) to assess ad effectiveness with an implicit measurement technique. The IAT works on the basis that “if two concepts are highly associated, the IAT’s sorting tasks will be easier when the two associated concepts share the same response, than when they require different responses” (Greenwald & Nosek, 2001 p. 85). The IAT is a reaction time (RT) task. In one of the initial experiments reported by Greenwald et al. (1998) expected combinations of terms (flower names + pleasant words) yielded significantly shorter RTs than less expected combinations (insect names + pleasant words). The same test framework has also been effective in measuring implicit preferences towards consumer brands (Maison, Greenwald, & Bruin, 2004). For this study, we adapted the IAT paradigm to also measure ad effectiveness as attitude change towards a brand as a result of watching a TV ad. Hence, in contrast to previous applications of the IAT in advertising research (e.g. Hari & Forestier, 2012), our participants had to take the IAT twice, before and after watching an ad. We hypothesised that reaction times would decrease when responding to target-concept words (i.e. words associated with the brand) after seeing an advert with congruent music (i.e. music with a low distance from the brand profile). Conversely, we expected reaction times (RTs) to remain unchanged or even increase if participants were exposed to an ad with incongruent music or no music at all. In accordance with the standard IAT methodology, we used a water brand for comparison to the target juice brand in order to control for practice effects. If reactions for the target juice brand

Implicit and Explicit Effects of Music on Brand Perception in TV Ads

are significantly reduced compared to reactions for the water brand this would indicate the effectiveness of an associative priming effect generated by the combination of music and ad.

3.1 Method

The experiment used the same four TV ads that formed the basis for experiment 1. According to the results of experiment 1, we selected the four tracks that matched most closely the juice brand profile as well as the tracks that were judged as most distant from brand profile. In addition, all four TV ads were also presented without any music (but retaining the spoken message at the end of each spot). Crossing the four TV ads with the three music types created twelve different conditions on which we tested 259 participants (most frequent age bands 18-25 years (n=101) and 26-34 years (n=88); 43.6% women) in a between-subjects design. The explicit questionnaire, as well as the IAT, were implemented as an online test together with the actual ad using the Qualtrics multimedia testing framework.

Participants were first acquainted with the IAT procedure by running two practice trials. After that participants completed three consecutive runs of the IAT before watching a TV advert, paired with congruent, incongruent or no music depending on the participant's condition. This was followed by another three runs of the IAT. RTs from the three runs before and after watching the ad were compared to assess the effect of the ad condition implicitly. As the last component of the experimental procedure participants responded to the explicit questionnaire asking participants' about their perception of the ad.

3.2 Results

Explicit Questionnaire

In accordance with industry standards we combined five rating scale items from the explicit questionnaire to index the effectiveness of the ad. One item measured the enjoyment of the ad, three items indexed engagement with the ad and one item reflected how well the brand was

linked to the message of the ad. Ratings from all items were z-transformed and the three engagement items were averaged before adding them to the other two items. The resulting effectiveness score ranged on a scale from about -7 to 8 and was normally distributed.

We analysed the effectiveness score with a linear mixed-effects model with music condition (congruent, incongruent, no music) as fixed effect and ad campaign (4 different campaigns) as random effect. According to the model there was a significant effect of music condition ($F(2,244)=3.79$, $p = .024$). Bonferroni-corrected pair-wise comparisons between all three conditions revealed that there was a significant difference ($p = .024$) between congruent music and no music but not between incongruent music and either of the two other conditions as shown in **Figure 2**.

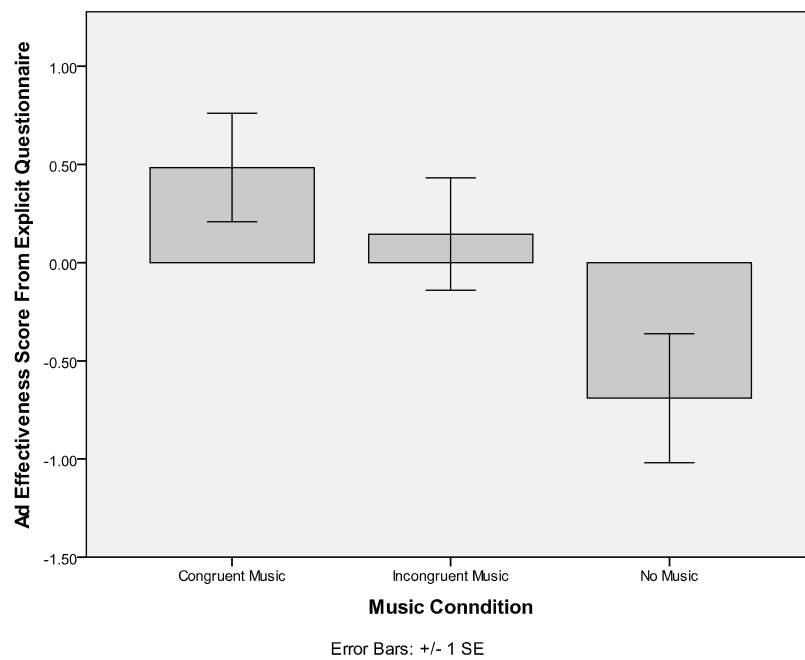


Figure 2: Means of the ad effectiveness score for the three music conditions. Error bars indicate +/- 1 standard error.

Implicit and Explicit Effects of Music on Brand Perception in TV Ads

In order to determine whether the effect of music interacted differently with the four different ad campaigns we ran a model-based partitioning analysis (Strobl et al., 2009) which indicated that the music conditions impacted differently on participants' explicit ratings for ad campaign 3 compared to the other three campaigns. For campaign 3, congruent music does indeed differ significantly from incongruent as well as from no music as hypothesised ($p < .05$) while for the other 3 campaigns differences between congruent and incongruent music are smaller and not significant.

Implicit Brand Attitudes

With regards to the implicit attitudes towards the juice brand and changes of these attitudes, we looked for two different effects in the RT data from the IAT task. Firstly, we hypothesised that participants would generally have positive attitudes towards the brand and therefore reaction times prior to seeing the ad should be shorter for brand attributes being paired with positive attributes as when paired with negative attributes. Secondly, any positive influence of watching the ad should manifest itself in shorter reaction times for brand attributes paired with positive attributes after seeing the ad compared with the same condition before the ad. Because the sorting of positive/negative attributes together with the brands relied on the speed with which participants responded with their right/left hand we included self-assessed handedness of the participant as a predictor variable.

We ran a mixed-effects model on with positive/negative attribute pairing and handedness as fixed effects and participant and item as random effect using only the log-transformed reaction times from the two pre-ad trials for the juice brand. Attribute pairing ($t(2969)=2.864$, $p=.004$) as well as the interaction between attribute pairing and handedness ($t(2969)=-2.473$, $p=.013$) proved to be significant predictors in the model while handedness as a main effect did not reach significance ($t(2969)=0.544$, $p=.586$). As hypothesised reactions for the trial where the brand attributes were paired with negative attributes were generally

slower and this effect even was significantly stronger for the left-handed participants as can be seen from the means in **Table 1**.

	Attribute Pairing	Handedness	Mean Reaction Times (SD) in milliseconds
1	positive attributes	left	917 (377)
2	negative attributes	left	1035 (508)
3	positive attributes	right	936 (366)
4	negative attributes	right	0.948 (0.394)

Table 1. Means and standard deviations of (untransformed) reaction times to juice brand attributes when paired with positive as opposed to negative general adjectives.

To identify any change in the implicit attitudes towards the brand due to watching the ad we ran a mixed-effects model with a full factorial design using music condition, attribute pairing, pre-post ad viewing and handedness as fixed effect predictor variables and participant, item, and ad campaign as random effects. We hypothesised that a 4-way interaction effect between these variables would indicate the effect of the music condition. However, the 4-way interactions did not reach significance level, neither for the contrasts between congruent and incongruent music nor for congruent music vs silence ($p > .5$ in both cases). In fact, none of the 24 main and interaction effects in this model reached significance.

4. Discussion

In this paper we have described a principled and empirically grounded way for matching music pieces to consumer brands and quantifying the distance between a brand and a piece of music. This novel research tool enables advertisers and market researchers to identify music that either fully reinforces the emotional values of a brand or deliberately associates a brand with emotional labels that it is less associated with. The tool is

Implicit and Explicit Effects of Music on Brand Perception in TV Ads

simple, easy to score and it is equally suitable for participants regardless of their gender or musical background.

In the explicit evaluation of the effectiveness of TV ads (with congruent or incongruent music or silence) via a post-experiment questionnaire we found significantly higher effectiveness scores for congruent music than silence as well as significantly higher scores for congruent vs. incongruent music, but only for one out of the four ads tested. The finding that the difference in effectiveness scores between congruent and incongruent music was not significant for the other three ads might be explained by the fact that both types of music tracks were matched on a number of important attributes, such as artist, genre, musical era etc. Thus while the emotional content of the tracks differed, there might have still been a musical fit between brand and music that was created by the attributes the tracks had in common (see Zander et al., 2010). Thus, in a follow-up experiment it would be interesting to see whether consumers' interpretations of TV ads can differ due to different musical soundtracks while the effectiveness of the ads remains unchanged. If this hypothesis was true then it would be appropriate to speak of several possible 'musical fits', at least for certain types of ads.

Similar to IAT applications in previous advertising research we were able to measure significant implicit attitudes towards the target brand. However, we were not successful in measuring any change in implicit attitudes comparing the results from the runs of the IAT before and after watching the ad. There are several potential reasons for this failure to observe a change in attitudes. First it is widely accepted that implicit attitudes in general, and consumer attitudes in particular, change slowly (see review by Gawronski & Bodenhausen, 2006). Thus, it is possible that several viewings of the same ad might have been required in order to observe significant changes in implicit attitude. A second possibility is the time consuming nature of our experimental setup may have weakened the effects via fatigue, order effects and large individual differences. In addition, data collection was carried out over the internet reducing our ability to control the conditions under which the experiment was taken. Finally, the argument that the same ad can have a good fit with dif-

ferent kinds of music might also apply to the absent effects for implicit attitudes.

Thus, we conclude that the initial results from using the semantic differential as a tool for selecting music to enhance the effectiveness of TV ads are encouraging and warrant further research. Future research would need to focus on the characteristics of certain ads that interact with the impact of different types of music. In addition, whether change in implicit attitudes is observable using the IAT is unresolved and warrants further research.

Acknowledgements

We are grateful for the support with this project from Sarah Carter and Les Binet from DDB UK as well as Orlando Wood from BrainJuicer. We also like to thank Katharina Bauer who helped with the preparation of the manuscript.

References

- Appelbaum, U., & Halliburton, C. (1993). How to Develop International Advertising Campaigns that Work. *International Journal of Advertising*, 12 (3), 223-241.
- Asmus, E. P. (1985). The development of a multidimensional instrument for the measurement of affective responses to music. *Psychology of Music*, 13(1), 19-30.
- Brown, G. (1986). Modelling Advertising Awareness. *Journal of the Royal Statistical Society. Series D (The Statistician)*, 35(2), 289-299.
- Coffman, D., Gfeller, K., & Eckert, M. (1995). Effect of textual setting, training and gender on emotional response to verbal and musical information. *Psychomusicology*, 14, 117-136.
- Feldwick, P., Carter, S., & Cook, L. (1991). How Valuable is the Awareness Index. *Market Research Society 1991 Conference Papers*, 137-150.
- Gawronski, Bertram, & Bodenhausen, Galen V. (2006). Associative and propositional processes in evaluation: An integrative review of implicit and explicit

Implicit and Explicit Effects of Music on Brand Perception in TV Ads

- attitude change. *Psychological Bulletin*, 132(5), 692-731.
- Gorn, G. J. (1982). The effects of music in advertising on choice behavior: a classical conditioning approach. *Journal of Marketing*, 46(1), 94-101.
- Greenwald, A. G., McGhee, D. E., & Schwartz, J. L. K. (1998). Measuring Individual Differences in Implicit Cognition: The Implicit Association Test. *Journal of Personality and Social Psychology*, 74(6), 1464-1480.
- Greenwald, A. G., & Nosek, B. A. (2001). Health of the Implicit Association Test at Age 3. *Zeitschrift für Experimentelle Psychologie*, 48 (2), 85-93.
- Hari, J., & Forestier, C. (2012). The thin win: Implicit preference for slim models in advertising. *Academy of Marketing Conference*, Paper 131.
- Hung, K. (2001). Framing meaning perceptions with music: The case of teaser ads. *Journal of Advertising*, 30(3), 39-49.
- MacInnis, D. J., Park, C. W. (1991). The differential role of characteristics of music on high- and low-involvement consumers' processing of ads. *Journal of Consumer Research*, 18(2), 161-173.
- Maison, D., Greenwald, A. G., & Bruin, R. H. (2004). Predictive Validity of the Implicit Association Test in Studies of Brands, Consumer Attitudes and Behaviour. *Journal of Consumer Psychology*, 14(4), 405-415.
- Miller, M., & Strongman, K. (2002). The emotional effects of music on religious experience: A study of the Pentecostal-charismatic style of music and worship. *Psychology of Music*, 30(1), 8-27.
- Nisbett, R., & Wilson, T. (1977). Telling more than we can know: Verbal reports on mental processes. *Psychological Review*, 84, 234-259.
- North, A. C., & Hargreaves, D. J. (2008). *The social and applied psychology of music*. Oxford: Oxford University Press.
- Osgood, C. E., Suci, O. J., & Tannenbaum, P. H. (1957). *The measurement of meaning*. Urbana: University of Illinois Press.
- Schacter, D. L. (1989). On the Relation Between Memory and Consciousness: Dissociable Interactions and Conscious Experience. In H. L. Roediger & F. I. Craik (Eds.), *Varieties of Memory and Consciousness. Essays in honour of Endel Tulving* (pp. 355-389). Hillsdale, NJ: Erlbaum.
- Simpkins, J. D., & Smith, J. A. (1974). Effects of music on source evaluations. *Journal of Broadcasting*, 18(3), 361-367.

Müllensiefen, Davies, Dossman, Hansen, Pickering

- Stewart, D. W., & Koslow, S. (1989). Executional factors and advertising effectiveness- a replication. *Journal of Advertising*, 18(3), 21-32.
- Strobl, C., Malley, J., & Tutz, G. (2009). An introduction to recursive partitioning: rationale, application, and characteristics of classification and regression trees, bagging, and random forests. *Psychology Methods*, 14(4), 323-348.
- Zander, M., Apaolaza-Ibanez, V., Zander, & Hartmann, P. (2010). Music in advertising: Effects on brand and endorser perception. In Terlutter, R., Diehl, S., & Okazaki, S. (eds). *Advances in Advertising Research* (Vol. 1). 127-140. Wiesbaden: Gabler Verlag.