Music in Marketing:
An Interview Study on Commercial Jingles' Role in Branding and their Association with Visual Imagery

Long Yan Loren Ma
Durham University

ABSTRACT

The present study investigates the role of commercial jingles in branding and visual imagery with a qualitative approach. Ten participants completed a music listening task during a semi-structured interview. The results suggest that liking and commenting on sound stimuli are positively associated, whilst brand awareness and brand attitudes are positively associated with jingles that were perceived positively. The perception of brands was found to be positively associated with the perception of sound stimuli for jingles that were perceived more positively. Last but not least, commercial jingles may evoke different types of visual imagery according to whether the jingles included the brand name or slogan, or the nature of the product or service provided by the brand. These findings are useful as they suggest how music can be used to achieve desired effects in marketing, including increasing brand awareness and the types of visual imagery evoked.

1. INTRODUCTION

Music is everywhere in our daily lives and can affect us in many ways, especially in psychological aspects (Demirbatir, 2015; Fritz & Avsec, 2007; Laukka, 2007; Macdonald et al., 2012), ranging from mental health (Lee & Thyer, 2013; Lin et al., 2011; Wesseldijk et al. 2019) to productivity (Blood & Ferriss, 1993; White, 2007). From the 1920s, more and more companies began to use music as a stimulus in branding, which attracted researchers to investigate the role of music in marketing. Branding is defined as the process of "endowing products and services with the power of a brand" (Kotler & Keller, 2015) while a brand is defined as the "name, term, design, symbol, or any other feature that identifies one seller's goods or services as distinct from those of other sellers" (American Marketing Association, n.d.).

Music in advertisements was found to affect consumers' moods and emotions (Alpert & Alpert, 1989; Alpert et al. 2005; Bruner, 1990), purchase behaviour (Bou-Llusar et al., 2001; Gorn, 1982), attention and memory (Allan, 2006), and the image and reputation of the brand (Jankovich, 2013). In 1982, Gorn studied how music in advertising can have effects on choice behaviour using a classical conditioning approach. His study showed that perceived quality had a positive influence on purchase intentions (Gorn, 1982). Later, Alpert et al. (2005) developed their study based on Gorn's and further investigated the role of background music on consumers' moods and emotions and how that could relate to purchase intention. Their results found that music can evoke emotions that are relevant to the product and hence lead to higher purchase intentions (Alpert et al., 2005).

In a more recent study, Wu et al. (2010) explored the associations between sound stimuli in the marketing of a brand and consumers' perception towards the stimuli, attitude towards the brand, brand awareness, brand association, brand loyalty, and brand preference. Their findings fully support that brand awareness and association are positively related to attitude towards the brand, perceived quality and brand loyalty. They also support that attitude towards the brand and perceived quality are positively related to the brand loyalty, and that brand loyalty is related to brand preference.

Although there is no doubt that skillful use of music can lead to greater effectiveness in branding, it is unclear how sound stimuli are associated with how the brand is perceived. Findings by Wu et al. (2010) partially support that the perception of a sound stimulus is positively related to attitude towards the brand. Moreover, their study does not shed much light on the individual's feelings and thoughts towards commercial jingles and the brands represented by the jingles, which may have affected their conclusion. This study therefore aims to explore the role of music in branding with a qualitative approach, and also further investigates the associations between commercial jingles and visual imagery, providing valuable insights into how commercial jingles are related to consumers' thoughts and impressions of the brand. The key research questions of the present study are as follows:

1. How are liking and comments of perception of sound stimuli related?
2. How are brand awareness and brand attitudes related?
3. How are perceptions of sound stimuli and perceptions of brands related?
4. How are commercial jingles associated with visual imagery?

I tested four hypotheses. The first hypothesis is that the liking and (open-text) comments of the perception of sound stimuli will be positively associated. The second hypothesis is that brand awareness and brand attitudes will be positively associated, and the third hypothesis is that the perception of sound stimuli and perception of brands will be positively

associated. The second and third hypotheses are based on the results of Wu et al. (2010). Finally, the fourth hypothesis is that hearing commercial jingles will either evoke visual imagery related to the brand or with scenes in the brand's commercial advertisement.

2. METHOD

Participants. There were a total of 10 participants in this study. The participants' ages ranged from 20 to 57 years old ($M = 26.1$, $SD = 10.9$). Participants were of different educational level and occupation. The recruitment of participants was limited to Hong Kong residents that lived and grew up in Hong Kong, were fluent in Chinese and English, and could read and understand both languages. This is because exposure to a brand, whether it is towards the commercial jingles themselves, the advertisement content of the commercial jingles, or the brands represented by the commercial jingles, is likely be affected by one's geographical location and is closely related to the society's culture. Moreover, the tasks in this study include listening to music that contain lyrics in both Cantonese and English and identifying logos that may contain both Chinese characters and English words, hence the language requirements. Participants were recruited through social media. Written informed consent was obtained from all participants before the start of the interview. Data were collected between 24th March 2021 to 13th April 2021.

Design. This study was conducted in the form of a semi-structured interview. The interview consisted of music listening tasks and open-ended and closed-ended questions about the musical excerpts. There were eight musical excerpts in total, and the interviews were conducted in English.

The dependent variables of the study are the perception of sound stimuli, the perception of the brands, and visual imagery associated with the commercial jingles. The perception of sound stimuli includes liking and comments: liking is measured based on ratings on a 7-point Likert scale with '1' being 'did not like the excerpt at all' and '7' as 'liked the excerpt very much'; comments were collected in an open-ended question asking participants to describe what the commercial jingle sounded like. The perception of the brands includes brand awareness and brand attitudes. Brand awareness is considered based on whether participants recognised the commercial jingle, whether they knew which brands the jingles represent, and whether they were able to recognise the logos of the brands. The logo recognition section was conducted in a multiple-choice format, in which participants were given five different logos and were asked to try and identify the logo of the brand the commercial jingle represents. Brand attitudes were investigated with open-ended questions asking participants how they felt about the brands and whether they thought that the commercial jingle suggested anything about the brand's quality. Visual imagery was investigated by open-ended questions asking participants what came to their minds upon hearing the jingles and any visual imagery related to the brands.

The extra variable of the study is the characteristics of the commercial jingles, depending on whether they included brand names and/or slogans. This classification of commercial jingles into these categories were based on the work of Wu et al. (2010), who suggested that commercial jingles can be classified into five different categories, according to whether commercial jingles included the brand name, slogan, and songs:

- Category 1: Commercial jingles with no brand name and no slogan;
- Category 2: Commercial jingles with no brand name but with slogan;
- Category 3: Commercial jingles with brand name but no slogan;
- Category 4: Commercial jingles with both brand name and slogan;
- Category 5: Commercial jingles with songs.

However, as commercial jingles that use a song may also include brand names and/or slogans, category 5 is not included to avoid confusion. The characteristics of the commercial jingles are considered by including two excerpts from each of categories 1-4. Other controlled variables are the incidences of, and exposure to the brands in Hong Kong, especially with respect to the society's culture. This means that the brands shall be of rather similar familiarity to the participants, although brand familiarity was not measured.

Materials. The eight musical listening excerpts were taken from the commercial jingles of eight different popular brands across different industries, with two excerpts in each of categories 1-4 with different brand names and slogans included (Table 1).

Table 1. Characteristics of the Eight Jingles and the Brand They Represent

Classification of jingle	Jingle characteristics		Brand characteristics	
	Brand name	Slogan	Brand	Brand industry
Category 1	✗	✗	HSBC	Financial services
			Intel	Information Technology
Category 2	✗	✓	McDonalds	Restaurants
			Vitasoy	Food and Beverages
Category 3	✓	✗	Expedia	Travel and tourism
			Trumpet Brand	Health supplements
Category 4	✓	✓	Choi Heong Yuen Bakery	Food and Beverages
			Pizza Hut	Restaurants

As the logo recognition section was conducted in a multiple-choice format, participants were given five different logos to choose from, including the brand represented by the

commercial jingle, and other brands in the same industry that are competitors of the brand represented by the jingle.

Procedures. The flow of the entire interview is shown in Figure 1. The entire interview took around 45 minutes to complete.

Figure 1. Flow of the interview

Before the interview, participants will read the information sheet and will be allowed to ask any questions related to the project. Upon checking whether they meet the requirement for participants recruitment, participants shall sign the written consent form if they agree to participate. All written information and materials will be shared to participants through email if they prefer to be interviewed in a phone or video call.

The interview consisted of three sections. First, the introductory questions related to the role of music in marketing were included to ease participants into the interview. This was followed by the music listening task, which included listening to 8 different musical excerpts and a set of open and closed-ended questions after each excerpt. The excerpts were played to the participants in a randomised order to avoid participants guessing the similarities and differences between the excerpts and identifying a trend that could affect the results of the study. The questions asked after each excerpt were designed to assess the liking and comments of perception of sound stimuli, participants' awareness of, and attitudes towards the brand, as well as any visual imagery related to the commercial jingles. Follow-up questions based on the participants' responses were asked when necessary, especially when clarifications are needed. Finally, demographic questions about the participants' age, education level, and occupation were included.

After the interview, a short debrief session will be held to tell participants about the aim and key research questions of the project, to which they were initially blind to ensure that their responses were not affected by their hypotheses towards the research question. Participants were able to raise any queries relating to the project.

3. RESULTS

Perception of sound stimuli. The perception of sound stimuli was considered in terms of liking and comments. The ratings for liking for each excerpt were analysed (Table 2). Qualitative responses describing what the commercial jingle sounds like and any comments on the commercial jingle were investigated through thematic analysis using the software NVivo and word clouds of comments were generated for each excerpt.

Table 2. Descriptive Statistics of Participants' Liking for Each Excerpt

Brand	Mean	SD	Minimum	Maximum
Expedia	3.4	1.58	2	6
HSBC	3.5	1.78	1	6
Intel	3.8	1.23	2	6
Trumpet Brand	4.1	1.20	2	6
McDonalds	4.8	0.42	4	5
Choi Heong Yuen Bakery	4.8	1.55	2	7
Pizza Hut	5.0	1.49	3	7
Vitasoy	5.3	1.49	2	7

Overall, the liking and comments towards each sound stimuli seem to be positively associated. For instance, the commercial jingles representing Expedia and HSBC were the least popular, with a mean liking score of 3.4 and 3.5 respectively; most of the larger words in the word clouds for these excerpts also tend to have a negative valence, including words such as "unpleasant", "incompatible", "unappealing" and "boring" (Figure 2).

Expedia (mean liking score = 3.4)   **HSBC** (mean liking score = 3.5)

Figure 2. Word clouds of comments for jingles with the lowest liking scores

On the other hand, the commercial jingles representing Pizza Hut and Vitasoy were the most popular, with a mean liking score of 5 and 5.3 respectively; the larger words in the world clouds for these excerpts tend to have a positive valence, including words such as "light-hearted", "happy", "lively", "supportive", and "warm", although a word with negative valence, "annoying", was used to describe Pizza Hut's commercial jingle (Figure 3).

Pizza Hut (mean liking score = 5.0)   **Vitasoy** (mean liking score = 5.3)
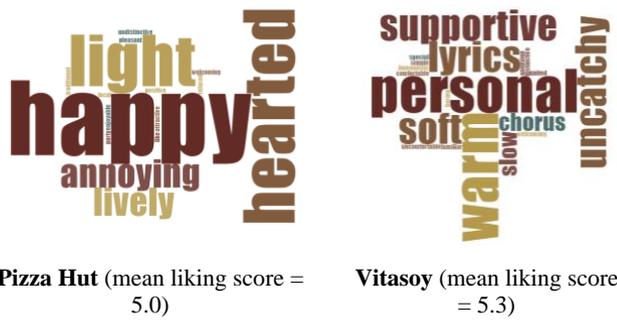
Figure 3. Word clouds of comments for jingles with the highest liking scores

Perception of the brands. The perception of the brands was considered in terms of brand awareness and brand attitudes. Brand awareness was assessed by three yes/no questions, including whether participants had heard of the jingle before, whether they recognised the brand represented by the jingle, and whether they could correctly identify the logo of the brand. Individual scores for each excerpt were calculated based on the number of 'yes' answers, and an average score for brand awareness based on responses to all three questions was generated for each excerpt (Table 3). Brand attitudes were considered in terms of the participant's feelings towards the brand and perceived quality of the brand. These qualitative responses were investigated through thematic analysis using the software NVivo, and word clouds of brand attitudes were generated for each excerpt.

Table 3. Scores of Brand Awareness

Excerpt	Heard jingle before	Brand recognition	Logo recognition	Average score
Intel	7	0	3	3.3
HSBC	5	3	3	3.7
Vitasoy	10	7	9	8.7
Pizza Hut	8	9	10	9.0
Expedia	9	8	10	9.0
McDonalds	9	10	10	9.7
Trumpet Brand	10	10	9	9.7
Choi Heong Yuen Bakery	10	10	10	10.0

Overall, brand awareness and brand attitudes do not seem to be related. For instance, both McDonald's and Expedia have rather high scores for brand awareness, 9.7 and 9.0 respectively, but participants had very different attitudes towards the brands: most comments towards McDonald's are quite positive (Figure 4), whereas responses towards Expedia were unfortunately rather negative (Figure 5). Contrastingly, although Intel has a rather low score of 3.3 for brand awareness, participants also had rather positive feelings and perceived the brand to be of rather high quality (Figure 6).

Feelings   **Perceived quality**

Figure 4. Word cloud of brand quality of McDonald's (Average score for brand awareness = 9.7)

Feelings   **Perceived quality**

Figure 5. Word cloud of brand quality of Expedia (Average score for brand awareness = 9.0)

Feelings   **Perceived quality**

Figure 6. Word cloud of brand quality for Intel (Average score for brand awareness = 3.3)

Linking the perception of sound stimuli to the perception of the brands. Table 4 links the liking and comments towards the sound stimuli to the brand awareness and attitudes for the eight different brands included in the study. This is insightful, as it reveals that brand awareness and brand attitudes are actually positively associated for brands represented by commercial jingles that were perceived more positively, and the lack of association as described previously was only limited to brands represented by commercial jingles that were perceived less positively.

Furthermore, results showed that the perception of sound stimuli is positively associated with the perception of the brand, for brands represented by commercial jingles that were perceived more positively. For example, the commercial jingles representing Pizza Hut and Vitasoy had positive comments and high mean liking scores of 5.0 and 5.3 respectively, and the brands themselves had high brand awareness scores of 9.0 and 8.7 respectively and were welcomed with positive attitudes. However, this association was not found for brands represented by commercial jingles that were less liked, as these brands may have low or high brand awareness and attitudes. For instance, the commercial jingle representing Expedia had rather negative comments and a low mean liking score of 3.4, and whilst the

brand had a high brand awareness score of 9.0, it was received with rather negative attitudes. Contrastingly, the commercial jingles representing HSBC and Intel also had rather negative comments and rather low mean liking scores of 3.5 and 3.8 respectively, and the brands had low brand awareness scores of 3.7 and 3.3 respectively, but both brands were perceived with rather positive attitudes.

Table 4. Associations between the Perception of Sound Stimuli and the Perception of the Brands

Perception of sound stimuli		Perception of the brands		Brands
Liking	**Comments**	**Brand awareness**	**Brand attitudes**	
High	Positive	High	Positive	Pizza Hut, Vitasoy
Average	Average	High	Average	McDonald's, Choi Heong Yuen Bakery, Trumpet Brand
Low	Negative	High	Negative	Expedia
Low	Negative	Low	Positive	HSBC, Intel

Commercial jingles and visual imagery. Qualitative responses describing any visual imagery evoked were investigated through thematic analysis using the software NVivo, and word clouds were generated for each excerpt. Our results revealed the types of visual imagery evoked by the commercial jingles vaguely fall into one of the following categories, including the brand logo, the product or services provided by the brand, the content of the advertisement, or pure imagination, albeit of different frequencies (Table 5). The results show that overall, most of the visual imagery participants recalled was related to the advertisement, and advertisement-related visual imagery was also the main type of visual imagery evoked for commercial jingles for four brands, including Choi Heong Yuen Bakery, Expedia, Trumpet Brand and Vitasoy.

Table 5. Frequency of Each Type of Visual Imagery Evoked by the Jingles (Bold Numbers Indicate the Most Frequent Imagey)

Brand	Brand logo	Product/ Service	Advertisement	Imagination
Choi Heong Yuen Bakery	1	6	**22**	0
Expedia	4	3	**13**	4
HSBC	1	6	0	**10**
Intel	0	9	0	**14**
McDonalds	**9**	6	5	4
Pizza Hut	2	**13**	10	6
Trumpet Brand	0	7	**17**	4
Vitasoy	7	6	**14**	0
Total	24	56	**81**	42

4. DISCUSSION

In terms of the perception of sound stimuli, results revealed that liking and comments towards the commercial jingles seem to be positively associated as hypothesised. This is intuitive, as both the liking and the comments were directed at the commercial jingles, and the comments can be seen as providing supplementary information from the participants explaining why they might have rated how much they like the commercial jingles. Interestingly, commercial jingles that received higher liking scores and more positive comments were those that represented brands that sell products (e.g. health supplements, food and beverages), or provide services associated to representative physical products (e.g. restaurants), whereas those that received lower liking scores and less positive comments were jingles that represented brands providing services without physical products (e.g. HSBC provides financial services, and Expedia provides travel booking services).

In terms of the perception of the brand, contradictory to our second hypothesis, our results initially suggest that brand awareness and brand attitudes seem to be unrelated, as brands with high awareness were found to have both positive attitudes (e.g. McDonald's, Pizza Hut) or negative attitudes (e.g. Expedia), and brands with positive attitudes were found to brand awareness scores that are high (e.g. Vitasoy, Trumpet Brand) or low (e.g. HSBC, Intel). This might be the case as brand awareness and brand attitudes are rather different constructs in the perception of the brand, and hence are not necessarily associated. Moreover, the fact that brand awareness usually precedes brand attitudes may explain why there is a greater range of brand attitudes for brands with high brand awareness scores, whilst only positive attitudes were reported towards brands with low brand awareness scores, as it is impossible to dislike a brand they are not aware of. In addition, linking the perception of sound stimuli and that of the brands revealed that brand awareness and brand attitudes are in fact positively associated for brands represented by commercial jingles that were perceived more positively, whilst the lack of evidence for any associations between brand awareness and brand attitudes were limited to brands represented by commercial jingles that were perceived less positively. This may once again be explained by the fact that brand awareness precedes brand attitudes, and hence it is impossible to have negative opinions on brands and the associated jingles if people are not aware of them.

Linking the perception of stimuli and that of the brands also revealed that they are positively associated for brands represented by commercial jingles that were perceived more positively. This suggests that a high-quality commercial jingle may contribute to higher awareness and more positive attitudes towards the brand, highlighting the immense potential of a good commercial jingle in marketing, in terms of both brand awareness and brand attitudes. Contrastingly, the finding that the perception of sound stimuli and that of the brands are not associated for brands represented by commercial jingles that

were perceived less positively suggests that a low-quality commercial jingle does not necessarily contribute to low awareness or negative attitudes towards the brand.

In the case of HSBC and Intel, it is possible that the commercial jingles that are received less positively has contributed to the low awareness, and if this were the case, this will once again highlight the importance of a good jingle in marketing as mentioned in the above. Alternatively, it is possible that there are other factors contributing to the poor reception of the commercial jingle and the low brand awareness, such as the characteristics of the commercial jingle itself, as both jingles representing HSBC and Intel did not include any brand name nor slogan. This then highlights the importance of including the brand name or the slogan in the jingle, as including either or both may increase brand awareness. Despite the low liking and negative comments towards the commercial jingles and low brand awareness, HSBC and Intel were welcomed by rather positive attitudes. This can once again be explained by brand awareness preceding brand attitudes, hence the positive attitudes may in part be due to the lack of awareness and knowledge about the brand prohibiting participants to have any feelings other than the default towards those brands.

On the other hand, in the case of Expedia, it is possible that the commercial jingle that is received less positively has contributed to negative attitudes. But, following the notion that brand awareness precedes brand attitudes, it is possible and rather likely that other factors may have contributed to these negative attitudes. These factors may include the mode of operation of the business, as Expedia is the only brand that operates exclusively online, and online-only businesses and services are very often seen as less reliable and less credible, which can be partially attributed to the role of cognitive heuristics in how we evaluate the credibility of information we come across online (Metzger et al., 2013).

Considering the visual imagery evoked by commercial jingles, advertisement-related visual imagery was found to occur most frequently, as in the case of Choi Heong Yuen Bakery, Expedia, Trumpet Brand and Vitasoy. This may be related to the high co-occurrence of the commercial jingles and the advertisement, as the jingles representing these brands are very rarely heard out of the context of the advertisement on TV, whereas the jingles representing McDonald's and Pizza Hut are also often heard in the restaurants themselves in addition to on TV. This may explain why visual imagery evoked by the commercial jingles representing the restaurants mainly fall into the category of the brand logo or the product/services related to the brand, as the brand logo in McDonald's and the pizza in Pizza Hut are prominent visual features of the dining experiences in these restaurants, in particular in relation to the restaurants' renovation. This shed light on how commercial jingles may evoke visual imagery associated to the environment in which the jingle is heard any perhaps any past personal dining experiences in that environment. Last but not least, the commercial jingles representing HSBC and Intel mainly evoked visual imagery from pure imagination. This might have been related to how these commercial jingles did not include the brand name or slogan. As they might not be able to quickly identify the brand, consumers may be guessing the brand represented by the sound, and through the process the sound stimuli may continue to evoke a greater diversity in imagination. These findings are valuable, as it shows that different types of visual imagery can be evoked according to the features of the commercial jingles or the nature of the brand.

Strengths. Firstly, this study is of high ecological validity, as the music listening task was able to mimic the listening of commercial jingles in everyday life. This means that the results and any conclusions made in this study is more reliable and applicable in a real-world setting. Secondly, the study has a specific target population in participant recruitment, which means that the potential influences of cultural differences is minimised, including differences in upbringing, languages, and sense of humour. Thirdly, the use of a semi-structured interviews enables more in-depth qualitative data collection which helps us better understand participants' feelings and thoughts, and allow new ideas to be explored.

Limitations. First, the study has a relatively small sample size, due to practical constraints, as the specific selection criteria in participant recruitment meant that very few participants fulfill all requirements, and semi-structured interviews are rather time-consuming to conduct. A small sample size is a limitation as this can lead to biases. Moreover, this research was targeted at a specific population and therefore our findings are not representative of the overall population. This raises concerns with external validity. Furthermore, due to time constraints, the study uses a small selection of commercial jingles and may not be representatives of other commercial jingles, as different jingles possess different characteristics which may contribute to the findings. Finally, the thematic analyses of the qualitative responses is subjective, and as the data analysis was only reviewed by myself, it could possibly be biased.

Future Directions. Improvements can be made to overcome the limitations in this study. First, the scale of the study could be expanded, including a larger sample size and use a wider range of sound stimuli. Second, future studies can further investigate how individuals' cultural background might have effect on the responses by performing a cross-cultural study that includes other nationalities. Finally, future studies can include multiple independent reviewers for thematic analyses to increase the reliability and validity of the qualitative data.

REFERENCES

Allan, D. (2006). Effects of popular music in advertising on attention and memory. *Journal of Advertising Research, 46*(4), 434-444. doi: 10.2501/S0021849906060491

Alpert, M.I., Alpert, J.I., & Maltz, E.N. (2005). Purchase occasion influence on the role of music in advertising. *Journal of Business Research, 58*(3), 369-376. doi: http://doi.org/10.1016/S0148-2963(03)00101-2.

Alpert, J.I., & Alpert, M.I. (1989). Background music as an influence in consumer mood and advertising responses. *Advances in Consumer Research, 16*, 485-492.

American Marketing Association. (n.d.) Brand. In *American Marketing Association*. Retrieved April 20, 2021, from https://www.ama.org/topics/branding/.

Blood, D.J., & Ferriss, S.J. (1993). Effects of Background Music on Anxiety, Satisfaction with Communication, and Productivity. *Psychological Reports, 72*(1), 171–177. doi: https://doi.org/10.2466/pr0.1993.72.1.171

Bou-Llusar, J.C., Camison-Zornoza, C., & Escrig-Tena, A.B. (2001). Measuring the relationship between firm perceived quality and customer satisfaction and its influence on purchase intentions. *Total Quality Management & Business Excellence, 12*(6), 719-734.

Bruner, G.C. (1990). Music, Mood, and Marketing. *Journal of Marketing, 54*(4), 94–104. doi: https://doi.org/10.1177/002224299005400408

Demirbatir, R.E. (2015). Relationships between psychological well-being, happiness, and educational satisfaction in university music students. *Educational Research and Reviews,10*(15), 2198-2206.

Fritz, B.S. & Avsec, A. (2007). The experience of flow and subjective well-being of music students. *Horizons Psychol., 16*(2), 5–17.

Gorn, G. (1982). The Effects of Music in Advertising on Choice Behavior: A Classical Conditioning Approach. *Journal of Marketing, 46*(1), 94-101. doi: 10.2307/1251163

Jankovich, R. (2013). Music as Engagement BT In*:* D. M. Jackson, R. Jankovich, E. Sheinkop, & D. Marcus (eds.) *Hit Brands: How Music Builds Value for the World's Smartest Brands*, 81–90. Palgrave Macmillan UK. https://doi.org/10.1057/9781137271488_5

Kotler, P., & Keller, K.L. (2010). *Marketing managemen*t. NJ: Prentice Hall.

Kotler, P., & Keller, K.L. (2015) *Marketing Management.* American Marketing Association.

Laukka, P. (2007). Uses of music and psychological well-being among the elderly. *Journal of Happiness Studies, 8*(215). doi: http://doi/org/10.1007/s10902-006-9024-3

Lee, J., & Thyer, B.A. (2013). Does Music Therapy Improve Mental Health in Adults? A Review. *Journal of Human Behavior in the Social Environment, 23*(5), 591-603. doi: 10.1080/10911359.2013.766147

Lin, S.T., et al. (2011). Mental Health Implications of Music: Insight from Neuroscientific and Clinical Studies. *Harvard Review of Psychiatry, 19*(1), 34-46.

Macdonald, R., Kreutz, G., & Mitchell, L. (2012). *Music, Health, and Wellbeing.* Oxford University Press.

Metzger, M.J. & Flanagin, A.J. (2013). Credibility and trust of information in online environments: The use of cognitive heuristics. *Journal of Pragmatics, 59*, 210-220. doi: https://doi.org/10.1016/j.pragma.2013.07.012.

Wesseldijk, L.W., Ullén, F., & Mosing, M.A. (2019). The effects of playing music on mental health outcomes. *Scientific Reports, 9*(12606).

White, K.N. (2007). *The effects of background music in the classroom on the productivity, motivation, and behavior of fourth grade students*. [Masters thesis, Divergent Learning Columbia College]

Wu, W.Y., Fu, C.S., Huang, H.S., & Wang, H.C. (2010). Effects of Sound Stimuli Applied in Branding. *Asian Journal of Business and Accounting, 3*(1). 27-54.