Dissecting The Sonic Identity Of Brands: Timbre Of Sonic Logo And Brand Perception

Sai-hyun Genie Kim

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Abstract
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Keywords
Sonic Logo, Warmth, Trust, Competence, Word of Mouth, Musical Instruments

Disciplines
Advertising and Promotion Management | Business | Music
DISSECTING THE SONIC IDENTITY OF BRANDS: TIMBRE OF SONIC LOGO AND BRAND PERCEPTION

By

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An Undergraduate Thesis submitted in partial fulfillment of the requirements for the

WHARTON RESEARCH SCHOLARS

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THE WHARTON SCHOOL, UNIVERSITY OF PENNSYLVANIA

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ABSTRACT

Sonic logos have been recognized by modern marketers as one of the most essential elements of sensory marketing that establish a brand’s identity and render a brand memorable. This paper examines the emotional implications of sonic logos. An experiment investigating the emotional impact of four versions of a fictional radio advertisement (three versions that feature a sonic logo performed on the violin, the piano, the trumpet, and one that does not feature a sonic logo) was conducted. Specifically, a text analysis of participants’ comments regarding the brand and an analysis of the participants’ perceived warmth of the nonprofit brand was conducted. The influence of the four stimuli on respondents’ willingness to spread positive word of mouth was also analyzed.

Results suggest that the piano sonic logo produced the most positive comments, but that the perceived warmth of the brand was highest for the group that listened to the trumpet sonic logo. The violin treatment group scored the lowest perceived warmth of the brand and generated comments that were less positively valanced than the other groups. Furthermore, the trumpet treatment groups’ willingness to spread positive word of mouth was highest among the four groups.

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INTRODUCTION

With the development of smartphones and conveniently portable laptops, videos have become a popular medium for advertisements. Therefore, increasing attention has been brought to the notion of “multisensory marketing,” in which companies utilize not only visual information, but also auditory, gustatory, and olfactory information to convey their products and brand image.

Among the sensory inputs, sound is a sensory input that can be utilized in various forms and can easily be spread to many people in a short amount of time. Westermann (2008) even notes that because it is harder to block sonic information, sonic messages are a more effective and intrusive method of conveying information to customers. Marketers, therefore, have tried to utilize sound to create catchy jingles that increase brand awareness and render the brand memorable. Examples of some of the most widely recognized jingles created by marketers are the “I’m Chiquita banana and I’ve come to say” jingle from the United Fruit Company, Pepsi cola’s “Pepsi cola hits the spot,” and the jingle, “I’d like to teach the world to sing,” by Coca-Cola (Krishnan et al., 2012).

Therefore, scholars have investigated various ways to utilize sound for marketing. For instance, scholars such as Zoghaib (2019) studied the use of music in advertisements and how the sentiment of the music influences customers’ perceptions of the product. Other scholars have studied the relationship between in-store music and purchasing behavior of customers (Park et al., 2018). Scholars also investigated the relationship between music and product perception. For example, Crisinel et al. (2012) investigated how people’s perceptions of toffee change when they are listening to bitter music and sweet music. The results of their study indicate that respondents
perceived the toffee samples to taste more bitter when they listened to a bitter soundtrack than when they had listened to a sweet soundtrack (Crisinel et al., 2012).

Not only has sound been investigated in the context of product perception, but sound has also been studied and used as a valuable tool to build brand image through sonic logos. Several successful companies utilized sonic logos to convey their brand image. For instance, Windows and Nokia have created their own, unique chimes and ring tones that are played when customers turn on their computers. McDonalds’ tone “I’m lovin it” is a tone that was utilized in their advertisements and greatly resonated with the customers.

As shown through the successful precedents mentioned above, sonic logos, if created properly, can be a great way for a brand to make their customers remember the brand and convey the sentiment of their product. However, creating a sonic logo that aligns with the brand image and is easy to process is very complicated because sound is characterized by many objective features such as texture, pitch, or time. The three essential features of music can further be organized into subcategories that need to be considered when composing a sonic logo. For instance, texture can be further categorized into timbre (musical texture that differentiates one instrument sound from another) and volume, pitch is categorized into the melody of the piece (succession of notes throughout the musical excerpt) and the mode (tonal identity of a song), and time can be broken down into rhythm (patterns of accents or emphasis assigned to beats) and tempo (the speed of the rhythmic progression of a musical excerpt) (Bruner, 1990). Therefore, understanding the psychological implications of different elements that compose sonic logos is critical in designing a successful sonic logo.

This research paper tackles a part of this issue and presents an experiment that addresses one of the most important factors of the timbre of sonic logos: instrumental composition. Based on articles in sound studies that illustrate the psychological implications of instruments and
literature in social psychology that analyzes people’s perceptions of warmth, my research studies how sonic logos produced by different instruments shape the emotional reception of non-profit brands and investigates how this affects people’s willingness to promote the brand.

LITERATURE REVIEW

Sonic Logos

Music plays a key role in shaping brand image. Beverland et al. states that music brand fit, which they define as the “congruency between music and other atmospheric in-store variables ... and perceptions of the brand” (2006, p. 983), is a crucial factor that could be used to attract new customers. Bonde and Hansen (2013) also point out that among the four key elements of sonic logos (tempo, rhythm, pitch, and timbre) pitch and timbre play a decisive role in brand recognition. Not only does music help consumers recognize the brand, but music also helps the brand tell the story of the brand to strategically increase brand loyalty (Treasure, 2007).

As music is recognized as a key sensory input that shapes brand image, sonic logos have been increasingly utilized by many companies and have been studied in branding literature. Sonic logo is defined as “the strategic use of sound to communicate the identity and values of a brand” (Mas, 2019, p. 586) and is usually created in the form of a short musical excerpt that lasts a few seconds. Sonic Logos are also considered as an “auditory analog of a visual logo” (Kellaris, 2012).

Research has shown that sonic logos affect customers’ perceptions of brands. For instance, a brand with a sonic logo composed of descending pitch is considered down to earth while a brand with a slow and fade-up (increasing in intensity) sonic logo is considered pleasant and simple (Mas, 2019). Brand image created by sonic logos is also translated into tangible economic effects.
Kellaris et al. (2012) posit that there is a statistically significant, non-linear relationship between customers’ willingness to pay and the number of tones in sonic logos. Specifically, customers who heard sonic logos with 6 tones showed the highest willingness to pay, compared to customers who heard sonic logos with 3 tones and 9 tones.

**Warmth**

In psychological literature, the perception of warmth has been studied as a key component of social relationships. According to Judd et al. (2005), one dimension characterized by competence, agency, and individualism, and another dimension composed of traits such as warmth, communality, and collectivism are key components of social relationships. The perception of warmth is also correlated with a positive valence of the interpersonal judgment (Cuddy et al., 2007). In fact, in order to be perceived as warm, a person must establish a positive impression by complying to moral standards (Cuddy et al., 2007). Further experimental studies have shown that the number of positive statements of an individual is an effective predictor of their warmth ratings (Holoien & Fiske, 2013).

Studies have shown that as customers anthropomorphize brands, the perception of warmth of brands also becomes a key component of relationships people form with brands (Alvarez & Fournier, 2012). The BIAF (Brands as Intentional Agents Framework) suggests that the relationships customers form with brands are characterized by two fundamental dimensions of social cognition: warmth and competence (Kervyn et al., 2012). Specifically, warmth dictates judgements related to the intention of brands and the cooperative nature of brands (Kervyn et al., 2012). As warmth is correlated with judgements on cooperative intentions and an organization’s willingness to help, the perception of warmth increases willingness to buy for customers (Aaker et al., 2010). Prolonged brand image of warmth translates into enhanced customer engagement,
increased customer loyalty, and a stronger emotional connection with the brand. (Fournier, 1998; Fournier & Avery, 2010).

The ways in which the perception of warmth dictate a customer’s relationship with brands were further investigated in the context of nonprofit brands. Nonprofit brands are generally perceived to be warmer than for-profit brands (Aaker et al., 2010). Furthermore, a high level of perceived warmth translates into an increased admiration towards the brand and eventually an increase in willingness to buy (Aaker et al., 2010). Expanding upon this result, Bernritter et al. (2016) posit that a brand perceived as warm is more likely to receive “likes” on a social media posts along with positive word of mouth, and that this effect was greater for nonprofit bands than for for-profit brands.

**Music and Emotion**

Literature in the field of sound studies and music psychology investigates how musical timbre of songs stimulates different emotions for people, as timbre (defined as the tonal distinctiveness of a piece that enables one instrument to sound different from another even when they are simultaneously played) provides an “aesthetic richness” and “color” to a musical excerpt (Bruner, 1990). According to Goydke and Eckart (2004), the human brain is capable of pre-attentive categorization of sound even with more intricate and subtle differences in musical excerpts such as timbre. Kellaris (1994) also posits that musical timbre influences the effect of tempo and tonality on emotional pleasure. Specifically, his experiment concluded that music with a major tone stimulated pleasant feelings, and that the effect was more pronounced when the excerpt was recorded in a classical style. On the other hand, greater arousal caused by music with faster tempo was more noticeable when music was played in a pop style rather than a
classical style (Kellaris, 1994). Therefore, even subtle differences in musical timbre stimulate different emotions.

Specifically, instruments with distinct timbre stimulate different emotional effects. An early study on the emotional implications of different types of orchestral instruments indicate that woodwind instruments stimulate awkward or mournful feelings while melodies performed on bass instruments were perceived as triumphant or grotesque (Gundlach, 1935). Furthermore, the emotional effect of instruments differs by the method in which the instruments produce sound. For instance, plucked string instruments (harp, guitar, and plucked violin) stimulate negative emotions such as sadness and depression while the mallet percussion instruments stimulate positive emotions such as happiness and heroism (Chau et al., 2015). Among the eight instruments that were tested (harpsichord, marimba, vibraphone, xylophone, guitar, harp, piano and the plucked violin), the piano was the most emotionally neutral instrument (Chau et al., 2015). An analysis of the mean ratings of valence and energy arousal of instrument sounds further indicates that the viola conveys a more negative sentiment than other instruments such as the piano, the trumpet, or the flute (Eerola et al., 2011).

Instrumental composition also mediates the emotional reception of musical excerpts that were designed to convey certain emotions. For musical excerpts intended to convey happiness, people were less likely to recognize the intended emotion of excerpts played on the violin than those played on the electronic synthesizer, a piano, or a trumpet (Hailstone et al., 2009). On the other hand, the trumpet and the synthesizer were most effective in conveying happy emotions (Hailstone et al., 2009). For sad emotions, the rate of intended responses was the lowest for the trumpet than for the other instruments (Hailstone et al., 2009). Even within the same instrumental category, instruments exhibit varied emotionality. In the category of wind instruments, the trumpet and clarinet stimulate
happy and joyful emotions, while the horn and flute were best at evoking negative emotions of sadness (Wu et al., 2014).

The emotional implications of sounds produced by various instruments will also remain true for musical excerpts created for sonic branding. Therefore, this paper suggests that a variation in instrumental composition stimulates different emotional responses that shapes the perceived warmth of a brand, affecting customers’ willingness to spread positive word of mouth about the brand. As the research conducted by Hailstone et al. (2009) and Wu, Horner, and Lee (2014), indicated that people were less likely to detect the emotion conveyed when a happy musical excerpt was played on a violin compared to those recorded on a piano or trumpet, the violin is expected to stimulate more negatively valanced emotions than the piano or the trumpet. Consistent with previous findings by Hailstone et al. (2009) that the trumpet was the most effective medium to convey happy emotions, the trumpet is expected to stimulate the most positively valanced emotion among the three instruments. The piano is predicted to be emotionally neutral compared to the other two instruments, as the research conducted by Chau et al. (2015) suggest that the piano was perceived to be emotionally neutral relative to other instruments that were tested such as the violin or the marimba.

Since emotional positivity is closely related to the perception of warmth, the brand with a sonic logo recorded on the trumpet is predicted to be perceived as warmer than a brand with a sonic logo recorded on a piano or a violin. As indicated by literature in social psychology and the BIAF framework, the perceived warmth of a brand affects customer-brand relationships and customer’s willingness to promote the brand. Therefore, sonic logos that convey a warmer brand image is predicted to result in a higher willingness to spread positive word of mouth.

This paper, therefore, hypothesizes the following:
Hypothesis 1: The emotional valence of the text comments participants write about the sonic logo will differ based on the instrumental composition of the sonic logo: the trumpet will elicit positively valanced emotions, the piano will be emotionally neutral, and the plucked violin will arouse negatively valanced emotions.

Hypothesis 2: A sonic logo performed on a trumpet will produce the warmest brand image, followed by a sonic logo played on a piano. The brand with a sonic logo played on a violin will be perceived as the least warm brand.

Hypothesis 3: Sonic logos that convey a warmer brand image for a nonprofit brand will result in a higher willingness to spread positive word of mouth about the brand.

METHOD

Participants and Data Collection

Adults aged 17 or over were recruited via Amazon Mechanical Turk and received a financial compensation of $0.5 for their participation in the study. A total of 100 participants were recruited. The average age of the participants was 37.21. Female participants composed 51% of the participants and male participants composed 49% of the participants. The process of data collection was approved by the University of Pennsylvania Institutional Review Board.

Stimulus

This study created a fictional non-profit organization, “Ocean Blue” that was described as an organization made to reduce plastic waste in the ocean. Participants were presented with a scenario in which Ocean Blue is selling metal tumblers to raise funds to help wildlife in the
ocean and reduce plastic waste. Participants listened to a short radio advertisement that states, “Your donation will save the ocean. Buy a tumbler and donate to Ocean blue.”

Four different renditions of the advertisement were created. Three versions of the radio advertisement featured a sonic logo. The sonic logo was composed to convey a happy emotion. The excerpt was composed based on the musical stimuli composed by Hailstone et al. (2009) and Crisinel et al. (2012) that were intended to convey positively valanced emotions. Details of the structural properties of the musical excerpt are indicated in Table 1. The musical excerpt was recorded on three instruments that represent distinct timbres and groups of instruments: violin (string), trumpet (brass), and the piano (keyboard). The structural properties of the sonic logo are delineated in table 1.

Table 1. Structural Components of Sonic Logo

<table>
<thead>
<tr>
<th>Structural Components</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tonality (Mode)</td>
<td>Major</td>
</tr>
<tr>
<td>Tempo (beat/minute)</td>
<td>189</td>
</tr>
<tr>
<td>Meter</td>
<td>4/4</td>
</tr>
<tr>
<td>Dynamics</td>
<td>No Accented notes</td>
</tr>
</tbody>
</table>

Measure

Through a survey, each participant was randomly selected to be in one of the four treatment groups (the control group, the piano treatment group, the violin treatment group, and the trumpet treatment group). The participants listened to the radio advertisement and were asked to write 100-200 words about their perception of the brand. Participants then filled out a questionnaire that measured their perceived warmth, competence, the level of trust they associate with the brand, and their willingness to say positive things about the brand to other people. The survey was conducted though the Amazon Mechanical Turk platform.
To measure the emotional valence of the comments written by the participants, the Linguistic Inquiry and Wordcount (LIWC), a text analysis software that has been frequently used in academic literature to analyze comments, blogs, or customer reviews was used (Melumad et al., 2019). Using predetermined categories of words, the software was used to analyze the emotional valence of the comments written by the participants.

The perceived warmth of the product was measured through the Warmth Index, which is consisted of statements such as “I believe that Ocean Blue is warm”, “I believe that Ocean Blue is kind”, and “I believe that Ocean Blue is generous” (Aaker et al., 2010; Judd et al., 2005). Participants were asked to rate to what extent they agree with the statements on a scale of 1 to 7. Customers’ willingness to spread positive word of mouth was also measured through a questionnaire in which the participants rated the extent to which they would spread positive word of mouth about the brand on a scale of 1 to 7.

To make sure that perceptions of other variables in the second dimensional category of social judgement referenced by Aaker et al. (2010), competence, is not affected by the three sonic brand stimuli, the perceived competence of the non-profit brand was also measured. The Competence Index, which is consisted of statements “I believe that Ocean Blue is effective”, “I believe that Ocean Blue is efficient”, and “I believe that Ocean Blue is competent” (Aaker et al., 2010; Judd et al., 2005), was used to measure competence. As brand trust is another factor correlated with competence according to Sung and Kim (2010), participants’ perception on trust was also measured. Trust was measured in a similar way in which participants were asked to rate the degree to which they agree with the statements that measure trust such as, “I trust this brand”, “This is an honest brand”, or “This brand is safe” (Sung & Kim, 2010) on a scale of 1 to 7.
RESULTS

Text Analysis of Customers’ Perceptions

As this study focuses on the emotional valence of the text and its contribution to the perceived warmth of the brand, the “affective responses” linguistic category of the LIWC software was examined. The results indicated that words associated with positive emotions (e.g. good, love, nice, great) most frequently appeared in the comments written by the piano treatment group, followed by the trumpet treatment group, and the group that listened to a radio advertisement that did not feature a sonic logo. The treatment group that listened to the sonic logo played on a violin was least likely to use positive words in their comments. In fact, their comments featured fewer positive words than those written by the control group. On the other hand, the comments from the violin treatment group indicated the highest usage of negative words followed by the trumpet treatment group, the piano treatment group, and the control group.

Furthermore, an analysis of words related to perceptual processes reveals that the comments written by the trumpet treatment group showed the highest use of words related to perceptual processes. Specifically, comments written by the trumpet treatment group featured more words related to auditory perception than the other treatment groups. The results of the LIWC analysis are graphed in figure 1.

Overall, the respondents’ reactions to the sonic logo that was played on the violin was in line with hypothesis 1, as it generated comments with the least amount of positive words. However, unlike the proposed hypothesis, the piano treatment group wrote more positive comments than the trumpet treatment group, indicating that hypothesis 1 is partially accepted. In fact, the radio advertisement with the trumpet sound generated fewer positive comments than
the radio advertisement without a sonic logo. A closer analysis of the content of the comments revealed that comments from the piano treatment group and the control group had more positive words because the respondents provided many positive comments regarding the efficiency of the band or the importance of the social cause rather than using positive words to signify an emotional attachment with a brand. For instance, one participant stated,

“I really think Ocean Blue is tackling a great cause. It’s good that more organizations are trying to eliminate trash and plastic waste in the ocean to save wildlife. Ocean Blue is also presenting a more effective way of addressing this issue by actually providing tumblers instead of simply discouraging people from using plastic”.

Note: the numerical values represent the % of predetermined words in the respective categories that appeared in the dataset.
Similarly, the results indicate that the violin treatment group generated comments that included the most amount of negative words. A qualitative analysis of the comments suggested that many of the comments by the violin treatment group featured an emotional assessment of the environmental issue and some criticisms of the radio advertisement. For instance, a respondent stated,

“Ocean Blue is addressing a very severe issue. I had seen several documentaries regarding wildlife in the ocean and it’s really sad to see that the waste and plastic that we are throwing away is harming the environment.”

Another respondent from the violin treatment group stated,

“It seems like Ocean Blue is addressing an important issue that’s getting worse and worse. It’s definitely sad that so many animals are losing their lives because humans can’t control production. But I’m not sure if I would actually donate. I wish the radio advertisement contained more information about the brand. It was too short to really tell what the tumbler looks like.”

The comments from the trumpet treatment group also contained comments on the severity of the issue, explaining why the trumpet group generated the second most negative comments, but text responses from the trumpet group that described the severity of the environmental issue had more emphasis on the positive comments of Ocean Blue.

For instance, a respondent had written,

“I heard that more and more animals that live in the ocean are losing their natural habitats because of human waste. This is definitely a depressing issue. This is why it is great that organizations like Ocean Blue are trying to solve this issue. I
like the name Ocean Blue and the fact that they are actually providing tumblers for people to use.”

**Perceived Warmth**

The results indicate that the group that listened to the radio advertisement that featured a sonic logo played on a trumpet perceived Ocean blue to be warmer (mean = 6.00) than other groups (mean piano = 4.96; mean violin = 4.04; mean control: 4.91). As expected, the radio advertisement that featured a sonic logo played on a violin recorded the lowest warmth index value. The results are delineated in figure 2. The ANOVA results also indicate that the differences are statistically significant ($p=1.73 \times 10^{-8}$, SE = 1.12). To analyze the statistical significance of the pairwise differences of the treatments, a Tukey’s range test was also conducted, and the results are represented in Table 2. The results suggest that the perceived warmth of the brand by the control group and the piano treatment group were not statistically different, but that the difference in the perceived warmth of the brand by pairs of other groups were statistically significant.

**Figure 2.**

*Effect of Stimuli on Perceived Brand Warmth*

![Bar chart](image)

*Note: The numerical values that represent perceived warmth labeled in the y axis refers to the mean Likert scale scores of the statements that comprised the warmth index.*
To determine if there were other confounding variables that altered the results, participants’ perceptions of the brand’s competence and trust were also measured though the competence index and the trust index. The competence index value was highest for the piano treatment group, followed by the control group, the violin treatment group, and the trumpet treatment group (mean piano = 5.53; mean control = 5.14; mean violin = 4.91; mean trumpet = 4.76). However, the ANOVA results indicate that the differences in the perceived competence of the brand by the treatment groups were not statistically significant ($p = .09$, SE = 1.06). Interestingly, the level of trust that people associated with the brand was consistent with the respondents’ perceived competence of the brand Ocean Blue, as the piano treatment group trusted the brand most followed by the control group, the violin treatment group, and the trumpet treatment group (mean piano = 5.09; mean control = 5.04; mean violin = 4.91; mean trumpet = 4.76). However, the ANOVA indicates that the differences in how much the respondents trusted the brand were also not statistically significant ($p = .81$, SE = 1.21). A Tukey’s range test also confirmed that none of the differences in the perceived competence and trust between the

### Table 2.

**Difference in Mean Value Between Treatment Groups (Warmth)**

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Difference in Mean Value</th>
<th>$p$-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Piano – Control</td>
<td>.04</td>
<td>.99</td>
</tr>
<tr>
<td>Trumpet – Control</td>
<td>1.09</td>
<td>.00*</td>
</tr>
<tr>
<td>Violin – Control</td>
<td>-.87</td>
<td>.02*</td>
</tr>
<tr>
<td>Trumpet- Piano</td>
<td>1.04</td>
<td>.00*</td>
</tr>
<tr>
<td>Violin - Piano</td>
<td>-.91</td>
<td>.01*</td>
</tr>
<tr>
<td>Violin – Trumpet</td>
<td>-1.96</td>
<td>.00*</td>
</tr>
</tbody>
</table>

$*p < .05$
treatment groups were statistically significant. Therefore, the respondents’ perception of the brand’s competence and trust did not act as a confounding variable that moderated the results suggested by the warmth index. Overall, the results were in line with hypothesis 2.

**Table 3.**

*Difference in Mean Value Between Treatment Groups (Competence)*

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Difference in Mean Value</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Piano – Control</td>
<td>.39</td>
<td>.54</td>
</tr>
<tr>
<td>Trumpet – Control</td>
<td>-.25</td>
<td>.84</td>
</tr>
<tr>
<td>Violin – Control</td>
<td>-.24</td>
<td>.86</td>
</tr>
<tr>
<td>Trumpet- Piano</td>
<td>-.64</td>
<td>.13</td>
</tr>
<tr>
<td>Violin - Piano</td>
<td>-.62</td>
<td>.14</td>
</tr>
<tr>
<td>Violin – Trumpet</td>
<td>.02</td>
<td>.99</td>
</tr>
</tbody>
</table>

**Table 4.**

*Difference in Mean Value Between Treatment Groups (Trust)*

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Difference in Mean Value</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Piano – Control</td>
<td>.05</td>
<td>.95</td>
</tr>
<tr>
<td>Trumpet – Control</td>
<td>-.25</td>
<td>.88</td>
</tr>
<tr>
<td>Violin – Control</td>
<td>-.13</td>
<td>.98</td>
</tr>
<tr>
<td>Trumpet- Piano</td>
<td>-.31</td>
<td>.81</td>
</tr>
<tr>
<td>Violin - Piano</td>
<td>-.18</td>
<td>.95</td>
</tr>
<tr>
<td>Violin – Trumpet</td>
<td>.12</td>
<td>.98</td>
</tr>
</tbody>
</table>
**Positive Word of Mouth**

The results suggest that the group that listened to the radio advertisement that featured a sonic logo played on a trumpet showed the highest willingness to say something positive about the brand to other people. As speculated in hypothesis 3, the piano treatment group showed the second highest willingness to spread positive word of mouth followed by the control group. As in the results for the perceived warmth of the brand, the violin treatment group showed the lowest willingness to spread positive word of mouth (mean violin = 3.03; mean trumpet = 5.12; mean piano = 4.36; mean control = 3.36). The ANOVA results also indicate that the differences are statistically significant ($p \leq 2.39 \times 10^{-5}$, SE = 1.58). The results are generally consistent with the literature on word of mouth and the perceived warmth of the brand, as it shows that people are more likely to spread positive word of mouth about a brand if they perceive a brand to be warm. However, a Tukey’s range test indicates that among the possible pairs of comparison, only the difference between the trumpet and the control group, the violin and the piano treatment group, and the trumpet and the violin treatment group were statistically significant. The results are depicted in Table 5.

**Table 5.**

Tukey’s Range Test Results (Positive Word of Mouth)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Difference in Mean Value</th>
<th>$p$-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Piano - Control</td>
<td>1.00</td>
<td>.12</td>
</tr>
<tr>
<td>Trumpet - Control</td>
<td>1.76</td>
<td>.00*</td>
</tr>
<tr>
<td>Violin - Control</td>
<td>-.32</td>
<td>.89</td>
</tr>
<tr>
<td>Trumpet - Piano</td>
<td>0.76</td>
<td>.33</td>
</tr>
<tr>
<td>Violin - Piano</td>
<td>-1.32</td>
<td>.02*</td>
</tr>
<tr>
<td>Violin - Trumpet</td>
<td>-2.08</td>
<td>.00*</td>
</tr>
</tbody>
</table>

* $p<.05$
DISCUSSION

Summary and General Discussion

This study utilized a controlled experiment that involved both qualitative and quantitative analysis to examine the emotional effects of instruments used in sonic logos. The study reveals that the comments written by the piano treatment group contained the greatest number of positive words, followed by those written by the trumpet treatment group, the control group, and the violin treatment group. However, it is important to note that the positively valanced words generated by the piano treatment group were mostly focused on the effectiveness of the brand’s initiative rather than an emotional attachment to the brand. One possible explanation would be that because the sound of the piano was perceived to be emotionally neutral, as indicated in the research conducted by Chau et al. (2015), respondents were able to more thoroughly analyze the effectiveness of the brand’s initiative and the social cause the brand was promoting. Furthermore, the radio advertisement that featured the trumpet was most effective in driving the respondents’ attention to their auditory senses, as the trumpet treatment group utilized the greatest number of words related to hearing. Since the trumpet effectively conveys positive emotions according to the findings by Hailstone et al. (2009), positive emotions aroused by the trumpet could have rendered the sonic logo more memorable and significant to the respondents.

As expected, the warmth index value decreased in the following order: the trumpet treatment group, the piano treatment group, the control group, and the violin treatment group. Whereas the other groups demonstrated statistically significant differences, the difference in the warmth index value between the control group and the piano group was not statistically significant. The findings of Chau et al. (2015) that indicate that the piano is an emotionally neutral instrument may provide an explanation as to why the perceived warmth of the piano
group was not significantly different from that of the control group. Because the piano did not arouse emotional responses from the participants compared to the other instruments, the perception of warmth shaped through the piano could have been equivalent to the stimulus without any instrumental accompaniment. On the other hand, the four groups did not show statistically different values for the competence index and the trust index.

Finally, reflecting the results of the warmth index, respondents’ willingness to spread positive word of mouth was the highest for the trumpet treatment group followed by the piano treatment group, the control group, and the violin treatment group. However, the results also indicate that the willingness to spread positive word of mouth by the piano treatment group and the violin treatment group was not significantly different from that of the control group. The findings indicate that only the trumpet yielded an emotional response that was sufficient enough to encourage participants to actively endorse the brand.

**Limitations and Directions for Future Research**

This paper faces some limitations that give room for future research. One limitation is that the stimuli that were used were short recordings in the form of radio advertisements, and therefore, the participants did not have much information regarding the brand or the initiative that it was launching. Reflecting a current trend in marketing towards more visual methods of advertisements, future studies should investigate the role of the instrumental composition of sonic logos in video advertisements. The results would provide an interesting comparison with the results presented by this study, as it would show whether there are interaction effects between the visual and the auditory senses of participants.

Furthermore, the findings of this study are restricted to non-profit brands. When the customer acknowledges that a brand is selling products for profit without a greater cause, the
ways in which their perceptions of the brand are influenced by the sonic logo may be different. Customers may, for instance, be less influenced by the sonic logo, as they pay more attention to the effectiveness of the product. Furthermore, the emotions aroused by the instrumental composition of the sonic logo may be altered by their perceived product necessity. Future research related to this topic could, therefore, explore other product categories of for-profit brands to test if the results remain consistent with the findings of this study on nonprofit brands.

Additionally, further research should be conducted to investigate why the difference in willingness to spread positive word of mouth of the treatment groups were not entirely statistically significant although the perceived warmth of the brand by the different treatment groups were significantly different. Possible confounding variables that may have altered the results include the speaker’s voice in the radio advertisement, the age of the participants, and the product category of the product that was sold. Therefore, the ways in which these potential confounding variables mediate the effect of instruments featured in sonic logos should be studied.

Finally, to accommodate the different product categories of instruments, this study selected three instruments (trumpet, piano, and violin) that represented the different categories of instruments. However, as more brands nowadays are utilizing sonic logos consisted of electric sounds produced by the electric synthesizer or other electric sound effects, future studies should investigate the use of electric sounds in sonic logos. The effects of including vocals and lyrics in sonic logos should also be studied, as the presence of lyrics in a sonic logo may alter customers’ perception of the brand.

Managerial Implications
This paper sheds light into the emotional implications of the violin, the piano, and the trumpet that are featured in sonic logos used for nonprofit organizations. The findings of this research can be used in multiple ways in the context of marketing for nonprofit organizations. Depending on the purpose of the sonic logo, organizations can utilize different instruments for their sonic logo. If for instance, the purpose of the sonic logo is to establish brand loyalty and create a positive emotional attachment to the brand, brass instruments such as the trumpet may be most effective. If, however, the brand strives to create a brand image centered around the effectiveness or the competence of the brand, a piano may be the most appropriate instrument for their sonic logo. Although the sound of the violin indicated the lowest perceived warmth and stimulated more negative comments than other instruments, this research indicates that most of the negative words were used to describe the social issue rather than criticizing the brand. Therefore, the sound of the violin could still be purposefully used to arouse dismal emotions to emphasize the severity of a social issue addressed by a nonprofit organization.

Additionally, this study yields results consistent with previous findings regarding warmth and brand endorsements, since it provides evidence that a brand that is perceived to be warmer is more likely to be endorsed and promoted by customers. In fact, as the trumpet sound was most effective in increasing participants’ willingness to promote the brand, newly founded nonprofit organizations could compose sonic logos that feature the sound of the trumpet to market the brand and attract more donors.
Works Cited


