The relationship between employee tone of voice and customer attitudes

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THE RELATIONSHIP BETWEEN EMPLOYEE TONE OF VOICE
AND CUSTOMER ATTITUDES

by

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ABSTRACT

The Relationship between Employee Tone of Voice and Customer Attitudes

by

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As a concierge supervisor at a five-star hotel in South Korea, I was exposed to a concept from my superiors that a higher employee’s tone of voice may increase customer attitudes. In the United States, tone of voice training was also found at a pizza pub, located in Illinois. The study identifies the causal relationship between the tone of voice and customer satisfaction, by an experiment method. By manipulating tone of voice and analyzing resulting customer attitudes reveals the relationship between the two variables.

In this study, the result is contrary to the reasoning that derived from the observed industry practices. I found that participants were more receptive to the medium and low voice tone introductions. These findings show that there is a relationship between tone of voice and customer attitudes, but the significance was lower than I expected earlier. The finding does not lend empirical support to the traditional industry assumptions that the ‘positive’ tone of voice would be a high-pitched tone and the high-pitched tone will lead higher satisfaction. Instead, the experiment results show a ‘positive’ tone of voice is not necessarily ‘high-pitched’ tone, and it implies there might be some limitation to which an employee can raise their pitch.
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CHAPTER 1

INTRODUCTION

In South Korea, it is common for employees in the hospitality industry to train their subordinates to serve customers while speaking in a specific tone of voice described as the 'sol' tone. These individual professionals believe that speaking in the 'sol' tone leads to higher levels of customer attitudes. As a concierge supervisor at a 5-star hotel, I was exposed to the concept from my superiors and noticed that Korean customers prefer being spoken to in higher tone because it can be interpreted as a brighter and more positive tone. Yet, there were few academic documents to generalize the notion that a certain tone of voice increases customer attitudes. There were also few documents that attempted to define the 'sol' tone with scientific methods.

Interestingly, in the United States, tone of voice training was also found at Nick's Pizza and Pub, located in Illinois. The restaurant company believes that communicating in a 'positive' tone of voice helps in increasing customer attitudes levels. The management of the pub trains employees to understand that a 'positive' tone of voice comes from an employee who has a positive mind set. The management suggested the 'positive' tone of voice is a little higher tone than a normal tone and that using it helps customers to feel happy. Finding that two unrelated parties in different countries both use an extremely non-traditional vocal training program to help their employees, this
study will investigate if a certain tone of voice does in fact increase customer attitudes as it pertains to service quality.

Problem Statement

The main purpose of the study is to investigate if there is a relationship between employees' tone of voice and customers' satisfaction. No studies have been done to directly investigate the relationship between employee tone of voice and customer attitudes. Yet, closely related studies have been conducted in various fields from the medical area to the hospitality area. The study will connect the previous studies in various areas in order to investigate the relationship between tone of voice and customer attitudes level.

Mehrabian (1971) discusses three elements of communication in his study. He shows that in face-to-face communication, words account only for 7%, tone of voice accounts for 38%, and body language accounts for 55%. In order to build upon Mehrabian's research, a tone of voice which delivers the strongest desired effect in a service context will be identified. In another study, Scherer (2003) reviewed that listeners can identify speaker's emotions only judging by their voice. By far, these studies identified that tone of voice is an important communication tool. In the hospitality area, there have been many studies that suggest how employees' emotions are transferable once a customer notices an employee's emotions. Haskett et al. (1997) suggest that employees' emotions are contagious to customers through their service encounter. Van Dolen et al. (2004) reveal a significant influence of positive emotions on customer satisfaction and no significant effect of negative effects. Further, Pugh (2001) proposes that the display of
positive emotion by employees is positively related to customers being satisfied following service encounters and to their evaluations of service quality. His study is closely related with the purpose of the current study because it tries to identify the relationship between employees' behavioral expression and customer attitudes.

While Pugh's (2001) results imply a significant application to the hospitality industry and also provide a useful framework for further studies, he does not consider the employees' tone of voice as an active factor to express employees' emotions. In the present study, the tone of voice will be considered as a factor that could affect both customers' emotions and their satisfaction. Pugh's (2001) framework to examine the relationship between employees' emotional expression and customer attitudes will be applied to the present study, but the tone of voice will be the only factor used to represent the employees' emotional status. In this way, the current study builds off of Pugh's prior study on emotional contagion in the service encounter.

The study's research purpose is to investigate if there is a relationship between employee tone of voice and customer attitudes. In order to identify the causal relationship between tone of voice and customer attitudes, an experimental method will be employed. Since there is only one independent variable (tone of voice), by manipulating tone of voice and analyzing resulting customer attitudes, it may reveal the nature of the relationship between the two factors. The fundamental frequency method is used to measure the tone of voice variable. Lawrence (2004) summarizes that "speech therapists and professional voice coaches offer voice training in changing the fundamental frequency of voice. The fundamental frequency (F0) or the number of times per second that the vocal folds vibrate (in hertz); the conversational fundamental
frequency is approximately 200 Hz for adult women and 125 Hz for adult men. Many of
the voice feminization techniques, including those of surgeons, focus on the fundamental
frequency”. This study implies that fundamental frequency can be used to measure the
tone of voice.

Significance of the Study

The study will link the previous studies from the literature in order to investigate the
relationship between tone of voice and customer attitudes level and extend Pugh (2001)’s
study to the vocal affects of the service encounter. With the results from this study,
industry managers will have an academic basis by which to train their employees in tone
of voice. Moreover, if the tone of voice is identified as closely related with customer
attitudes, the result can be applied as a way to measure the service quality standards of
hospitality industry employees.
CHAPTER 2

LITERATURE REVIEW

Introduction

The objective of this literature review is to summarize the existing research conducted in the following core areas: importance of tone of voice and measuring the tone of voice; emotional expression and recognition through vocal communication; and, emotional contagion between employees and customers.

No studies have directly investigated the relationship between tone of voice and customer attitudes. Yet, many studies have been conducted on the importance of vocal expression in communication, employee-customer emotional contagion in a service context, and employees' positive emotional effects on customer attitudes. While being conducted in different areas of the literature, these previous studies imply that tone of voice can be a significant factor which can affect customer attitudes levels. This chapter identifies studies done in different areas and brings them together. The core theories are: 1) tone of voice is important and can be measured; 2) emotions can be expressed and recognized through voice communication; and, 3) recognized emotions are contagious through communication.
Importance of Tone of Voice and Measuring the Tone of Voice

Many studies have been conducted on communication tone of voice, although no prior research sought to identify its importance in the hospitality industry context. Studies in tone of voice have proliferated after Mehrabian (1971). Tone of voice is now commonly considered as one of the important factors in the communication area.

Mehrabian (1971) discusses three elements of communication in his study. He shows that there are basically three elements in any face-to-face communication: words; tone of voice; and, body language. Words account for seven percent, tone of voice accounts for thirty eight percent, and body language accounts for fifty five percent of the message. He also suggests tone of voice and body languages are important when communicating feelings and attitudes, especially if words and the non-verbal messages disagree. He conducted experiments dealing with communications of feelings and attitude (i.e., like-dislike) and derived a conclusion that the 7%-38%-55% rule exists only when a sender's non-verbal expressions are inconsistent with the words spoken.

Mehrabian's (1971) study is not detailed enough to generalize that the tone of voice accounts for 38% of the message in every communication. Also, his study did not identify which tone of voice is more effective in communication. However, his study took an exploratory role to imply that controlling tone of voice would lead to different results in communications. Considering that the service delivery process itself is a kind of communication, his study suggests that tone of voice could have a certain relationship between customer emotions and satisfaction in a service context. Other studies show how much information could be conveyed by just the tone of voice in five minutes or less (Davitz, 1964; DePaulo & Rosenthal, 1979; Scherer, 1982).
Finding the most common method to measure the tone of voice was necessary in order to identify the relationship between employee tone of voice and customer attitudes. Scherer (2003) summarizes and reviews the current methods of measuring voice characteristics. Voice characteristics can be measured by voice intensity, fundamental frequency, sentence contours, high frequency energy, and speech rate. Among them, the fundamental frequency method is found to be the most proper method to measure tone of voice in current research. Scherer (1982) defines fundamental frequency (F0) as “the rate at which the vocal folds open and close across the glottis. Acoustically, F0 is defined as the lowest periodic cycle component of the acoustic waveform, and it is extracted by computerized tracking algorithms”. Pitch is a term to refer a perceived F0 in the decoding process.

Considering that the vocal service training that I received in South Korea was focused on making a tone as “similar to musical sol tone”, the pitch level (fundamental frequency level) is the only characteristic used to measure tone of voice in this study. Juslin and Laukka (2003) comment that the pitch level is the only aspect of musical compositions that has an approximate counterpart in vocal expression; the pitch level in musical compositions might be compared with the F0 in vocal expression. The preceding studies show that measuring the tone of voice by the fundamental frequency would be the most appropriate method to identify the relationship between a certain tone of voice used by employees and customer attitudes.

There are studies that imply that higher tone of voice would likely be related with happier emotions. Gabrielsson and Juslin (2003) note that low pitch is associated with sadness in vocal expression and high pitch is associated with happiness in vocal
expression. The characteristic acoustic cues of happiness are fast speech rate/tempo, medium-high voice intensity and frequency energy, and high fundamental frequency level (Juslin & Laukka, 2003).

These two studies from speech and communication literature show that an effective way to measure a tone of voice and imply that a certain tone of voice could be related with a certain emotion. Moreover, by measuring the tone of voice by pitch, it creates an experiment where it is possible to manipulate a speaker’s tone of voice by varying his/her pitch.

Emotional Expression and Recognition through Vocal Communication

Ekman (1985) suggests that individuals often give away their true emotions through facial cues and vocal expressions. Several studies tried to prove that tone of voice is a valuable source of information that can be used by listeners to supplement the linguistic aspects of messages (Murray & Arnott, 1993). The same words can be delivered differently depending on the vocal expression of emotion with which they are spoken (Kitayama & Howard, 1994). Wurm et al. (2001) conclude that emotional tone of voice and linguistic content are integrated very early in the recognition process with emotional tone of voice being seen as one kind of contextual information.

Scherer (2003) reviewed previous studies on emotion effects on voice and speech and these vocal expressions are recognizable by listeners. A summary of his study is that listeners can identify a speaker’s emotions judging by his/her voice. The emotion recognition through voices differs depending on culture and kinds of emotions. People in the same culture recognize the emotions better than the person of another culture; sadness
and anger are the best recognized emotions. Scherer concluded that it was hard to distinguish joy from other positive emotions, such as satisfaction and happiness.

These studies suggest that emotional expression and recognition are possible and efficient through vocal communication. Although no studies were directly focused on examining the emotional expression and recognition processes in the hospitality industry, these studies show a possibility that employee’ emotions can be expressed and recognized by customers. If applied to the hospitality industry, the results of these studies can be interpreted such that employees’ emotions and messages are being recognized by customers through vocal characteristics.

Emotional Contagion between Employees and Customers

Although it was not in the hospitality area, there were some studies done regarding the emotional contagion through vocal and non-vocal expressions. Hatfield et al. (1993) identified the emotional contagion as the tendency to automatically mimic and synchronize facial expression, vocalizations, and postures with those of another person and, consequently, to converge emotionally. Heskett et al. (1997) suggest the notion of “Service-Profit Chain”. They proposed that there is a causal relationship between employee satisfaction and customer attitudes to company profits. They found there is a significant relationship between employee satisfaction and customer attitudes and that employees emotions are contagious to customers during a service encounter. Dimatteo et al. (1980) investigate that physicians who were successful at expressing emotion through their non verbal communications tended to receive higher ratings from patients on the art of care than did other physicians who were less effective communicators.
Pugh (2001) also proposes that employees’ emotions are “transferred” to customers through the service encounter. He argues that customers “catch” the affect of employees through emotional contagion processes. The results from his study indicate that the display of positive emotion by employees is directly related to service quality and customer attitudes following service encounters.

These findings all imply that employees, through tone of voice, could deliver their emotions to customers in their communication and alter customers’ emotions as a result of the communication. Particularly, Pugh’s (2001) result suggests that an important link may exist between employees’ expression of emotions and customer attitudes.

Pugh analyzed employees’ emotions by verbal and nonverbal behaviors; his criteria were the degree of smile, eye contact, greeting delivery, and thanking customers. There were three separate sources of data for his study: (1) survey data from customer contact employees; (2) data on employee-expressed emotion collected by trained observers; and, (3) customer data collected in exit interviews. Employees were asked to answer a survey to show their current emotions. Then, observers recorded the employees’ expressed-emotions according to the established criteria. Finally, customers assessed their satisfaction rate on a survey.

Customers’ perception of service quality was measured with a modified version of the SERVQUAL instrument (Parasuraman et al., 1988), adopted from Gotlieb, Grewal, and Brown (1994), who developed a ten-item measure of service employing two SEVQUAL items for each of the five theorized dimensions of service quality. Customers indicated their level of agreement with the ten items on a seven point Likert-type scale.
Pugh's method has a limitation to measure employee-displayed emotions because it was an observational measure which did not consider vocal affects. He measured the emotional expression only by the timing of greeting, smile, eye contact and thanking customers at the end of each service encounter; none of these behavioral measures consider vocal communication.

Although Pugh's study does not consider vocal expression of employee emotions, his framework provides a good guide by which to explore the relationship between an employee's emotional expression and customer attitudes. Because the goal of the current study is to explore a relationship between employees' emotional expression and customer attitudes, Pugh's (2001) framework will be used in the current study, but to only be concentrated on expression through tone of voice.

Limitations from the Literature

Although previous studies suggest an important relationship between service provider's non-verbal communication and service receivers' perceived satisfaction, the studies did not isolate tone of voice as the only independent variable to affect the satisfaction level. They did not identify which tone of voice is the most effective to increase a patients' satisfaction. Also, the methodologies used therein were mostly surveys and observations in the real service environment and no experiments in a laboratory circumstance were conducted to examine the direct relationship between the tone of voice (ranged by fundamental frequency) and customer attitudes.
Purpose of the Current Study

Currently, no research exists that attempts to link employee tone of voice with an actual measure of displayed customer emotions/attitudes. Therefore, the current study will explore the relationship between tone of voice and the customer attitudes in a hospitality context. It may support Heskett et al. (1997)'s viewpoint that employee emotions are transferred to customers. Also, the current study will build on Pugh's (2001) prior work. However, since he did not involve any vocal expression in his study, the current study will extend Pugh's research.

Research Hypothesis

This study's research hypothesis is:

$H_0$: There is a relationship between a high employee tone of voice and positive customer attitudes.

An experiment will be used to measure the direct relationship between the employee tone of voice and customer attitudes level. The tone of voice will be expressed and measured by the fundamental frequency. As Scherer (2003) suggested, if a tone of voice can be measured by the fundamental frequency ($F_0$), it can be found which range of $F_0$ is the most suitable tone of voice, for customer contact situations.
CHAPTER 3

RESEARCH DESIGN AND METHODOLOGY

Introduction

The purpose of the study is to explore the relationship between employees' vocal tone and customer attitudes. In order to concentrate on investigating the relationship between tone of voice and customer attitudes, an experiment was conducted to examine the causal relationship between these two factors.

In our experiment, the independent variable was the tone of voice of the speaker and the dependent variable was the customers' satisfaction level. Since the experiment had only one independent variable, it was easy to see how the satisfaction level changed by manipulating the tone of voice. In order to determine the direct effect from tone of voice to customer attitudes, other variables that could affect customer attitudes were controlled. Other voice characteristics, such as tempo and accent, were held constant. Other communication tools, such as wording, facial expressions and body language, were removed from the experimental design by using recorded voice samples as opposed to actual humans speaking directly to participants in a live setting. Considering the need to control for other communication factors, a laboratory experiment was chosen over a field experiment.
The laboratory environment was needed to represent a typical situation in the hospitality industry. A hotel check-in simulation was selected in order to represent a hotel service delivery encounter. A hotel room check-in usually requires an employee to introduce the hotel and related facilities to customers. At the front desk, customers listen to what the employees explain for a few of minutes in order to use their rooms and facilities more effectively. This check-in service encounter is the type of encounter that can be easily manipulated in the laboratory.

Procedure

Encoding

A normal female English speaker was selected as the speaker for the experiment. Only one speaker was chosen to minimize possible effects from different genders and different vocal characteristics.

She read, and I recorded, a hotel and facilities instruction that a front desk clerk typically uses when customers check-in at a hotel (Appendix A). This script had been adapted from an actual hotel introduction that was used at a 5-star hotel in South Korea. The purpose of the script was to create a virtual situation that the experiment’s participants could easily imagine themselves being involved in. The script that the speaker used was read in an average time of three minutes.

The speaker gave the same introduction several times at several different pitch levels. The goal of the encoding process was to make voice samples at low, medium, and high pitch levels ranging from 150 Hz to 200 Hz (low), 201 Hz to 250 Hz (medium), and 251 Hz to 300 Hz (high). As a result, three corresponding voice samples were obtained that
each had a concentrated pitch within the targeted range. The fundamental frequency (Hz) in the tone of voice was measured by a voice analyzing software package called Praat, developed by the Institute of Phonetic Sciences at the University of Amsterdam. Except for the tone of voice, other vocal factors, such as voice tempo, length of voice sample and wording of the instruction, were kept constant. The speaker spoke in a normal/neutral emotional tone.

The Praat voice software analyzed each voice sample according to Hz and analyzed all spoken words ranging from 75 Hz to 500 Hz. Each image per voice sample is shown in Table 1, Table 2, and Table 3. The vocal images in Table 1-3 show at which Hz level a voice sample has the most concentration.

Decoding

An experiment facilitator visited University of Nevada, Las Vegas (UNLV) classes at the end of the class period and explained the purpose of the study as "Measuring an employee’s greeting and customer satisfaction". The participants were not told that the purpose of the study was to investigate the voice tone effect on customer attitudes because their consciousness on the subject may have interfered with their perception of service quality.

After the participants signed a consent form, the students listened to the pre-recorded voice instruction. After they completed the listening process, the participants were asked to measure the quality of the instruction on a survey (Appendix B). Their perceived service was measured on four 10-point semantic differential scales and they also rated their current mood, using items from Peterson and Sauber (1983), by indicating how much they agreed/disagreed with the following statements (on a seven point scale).
There was a quiz containing five items to assess how much of the script participants remembered. Lastly, they filled out background information (including age, gender, country of origin, how many nights they stay at hotels in a year, and when the last time they had stayed in a hotel). The participants were not allowed to make discussions during the experiments. They were thanked and debriefed at the end of the session.

The same experiment was conducted per different voice sample with different participants. For example, for voice sample A, a random group A evaluated the service and for voice sample B, another group B evaluated the service. Due to small class sizes, two experiments were conducted per voice sample. Analysis of variance (ANOVA) was used to analyze the results.

Sample Selection

Students at UNLV were selected as the sample because they represent a certain group of customers who could possibly use hospitality services. To initiate the sampling process, six UNLV classes were selected at random. Although this sampling method lacks generalization, the results from the sample still can help identify the relationship between tone of voice and customer attitudes.

A total of 85 participants evaluated the service quality of the recorded script read by the speaker. Approximately 25-30 people participated in separate experiments, each with a different voice sample. None of the students received any extra credit or other direct benefits from their participation in the experiment.
Analysis of Data

Analysis of variance (ANOVA) was used to analyze the results to measure the association between the dependent and independent variables. ANOVA is suitable in analyzing the data from the current study because there is only one independent variable (even though there may be several levels of that variable). It attempts to determine if statistically significant differences in means occur between two or more groups (Zikmund, 2003). With this analyzing method, it was easy to identify if there is a certain relationship between the tone of voice and customers satisfaction.

Limitation and Implications of the Study

The main limitation of the current study is inherited from sample selection. The participants are mostly young college students, and they may not represent different ages within the general population.

The current study takes an exploratory role to identify the relationship between employee tone of voice and customer attitudes through an experiment. To date, there has been no previous study specifically conducted on tone of voice and customer attitudes in the hospitality industry.

The study creates a foundation for research between tone of voice and customer attitudes. Future researchers will benefit from this foundation by having the initial results from experimental analysis of vocal tone as an isolated variable. Further experiments can be conducted using larger samples and various designs. The study builds a framework for future studies to examine how tone of voice affects a real service encounter, providing
circumstances which include other independent variables such as body language and physical surroundings.

With the results from the study, industry managers could have an academic basis to train their employees in tone of voice. By knowing the tone of voice which increases customer attitudes levels the most, companies could develop an easy and cost-effective way to increase their customer attitudes level. Not only can the companies use the results for the training, they can also use the results for their evaluation process. For example, many hospitality companies could add a tone of voice factor to existing employee evaluation. By adding the tone of voice to the evaluating items, a company could improve the current employee evaluation method and the new systems could positively reinforce the positive behavior-keeping a proper voice tone to serve a customer. On the other hand, if the research determines the lack of a link between tone of voice and satisfaction levels, service industry leaders could save opportunity costs that could have been spent on vocal tone training for their employees.
CHAPTER 4

DATA ANALYSIS AND RESULTS

Introduction

The purpose of this experiment was to determine if employee voice tone delivered in a hotel introduction would influence participants' attitudes toward the hotel and the employee, their perceptions of the hotel's level of customer service, their overall mood, and how well they retained the information about the hotel.

Participants

There were 85 (48 female, 37 male) ranging in age between 19 and 40 (average age of 24.9) participated in this study at UNLV. All but two of the participants had stayed in a hotel in the last year (and those two had stayed in a hotel within the last two years). The average number of nights spent in a hotel was 9.2 (omitting the person who had been living in a hotel for the past year). Fifty-five percent were native to the United States while the others came from Asian countries (N=30) and other countries, such as Eastern European, South American countries (N=6).
Design

This was a single-factor between subject design. Participants were randomly assigned to one of the three voice tone conditions.

Experimental Procedure

Recordings from the same standard American female were used for all the conditions. She varied her voice tone to be either high/sotto (which was defined having an average Hz of 250-300 Hz) or medium (which was defined having an average Hz of 200-250 Hz) or low (which was defined having an average Hz of 150-200 Hz).

After participants heard the hotel introduction which was played to groups on an audio player, they then were asked to fill out their perceptions and feelings about the hotel, rate the hotel’s customer service, rate the employee’s friendliness, and indicate their current mood. There was a quiz containing five items to assess how much of the script they remembered. Last they filled out background information (age, gender, country of origin, how many nights they stay at hotels in a year, and when the last time they had stayed in a hotel). The participants were not allowed to make discussions during the experiments. The full survey appears in Appendix B. They were thanked and debriefed at the end of the session.

Measures

Participants were asked to indicate their overall attitude toward the hotel on four 10-point semantic differential scales anchored by ‘unfavorable’-‘favorable’; ‘bad’-‘good’; ‘unpleasant’-‘pleasant’; ‘negative’-positive.’ Higher values indicate more positive
attitudes toward the hotel. They were also asked to indicate "How likely would you be to stay in this hotel in the future?" and "How likely would you be to recommend this hotel to your friends or family?" (both anchored by 1 = not very likely and 10 = very likely). These six items were found to load on one factor with a Cronbach alpha = .96. An average of these items was formed for the "Attitude and behavioral Intention" measure.

Participants also rated the employee’s friendliness, with the same four semantic differential items used for the attitude toward the hotel. These items were found to load on one factor with a Cronbach alpha = .92. An average was used to form an "Employee friendliness" measure.

Participants also rated the hotel on its level of customer service, with the same four semantic differential attitude items. These items were found to load on one factor with a Cronbach alpha = .93. An average was used to form a "Customer service" measure.

They rated their current mood, using items from Peterson and Sauber (1983), by indicating how much they agreed/disagreed with the following statements (on a seven point scale): "Currently I am in a good mood."); "I feel very cheerful."); "For some reason I am not very comfortable right now."); and "At this moment I feel edgy or irritable." The third and fourth items were reverse-coded so that higher values indicate a more positive mood state. These four items were found to load on one factor with a Cronbach alpha = .91.

There were five item quizzes that assessed their memory of the information provided in the earlier heard script. The number of correct items was used for a measure of their retention of the hotel information.
Results

Findings

The hypothesis was developed to examine the impact of the employee tone of voice to customer attitudes. Analysis of variance (ANOVA) was used to analyze the results, with voice tone as the factor. Post-hoc comparisons of means across groups was assessed using the Tukey procedure, with \( p = .05 \). Contrary to the literature, the results found that the medium and low voice tone led to highest attitude and behavioral intentions toward the hotel, \( M = 7.4 \) medium; \( M = 7.5 \) low; \( M = 6.5 \) high; the overall ANOVA model was significant at \( F(2,82) = 2.84; \ p = .06 \). Therefore, the hypothesis was rejected; there is no relationship between a high employee tone of voice and positive customer attitudes.

Other Findings

The employee’s friendliness was rated higher in the medium tone group, \( M = 7.9 \), and the low group, \( M = 7.5 \), than the high group, \( M = 6.9 \) but the ANOVA model was not significant \( F(2, 82) = 1.69, p = .19 \); the hotel’s customer service was rated higher in the medium group \( M = 7.9 \) and low group, \( M = 8.0 \), compared to the high, and the ANOVA model was significant at \( M = 6.8, F(2, 82) = 3.42, p = .03 \); the participants reported being in a more positive mood in the medium voice tone group, \( M = 5.2 \), and in the low group, \( M = 4.8 \), compared to the high \( M = 4.4 \) but the ANOVA model was not significant, \( F(2,82) = 1.7, p = .18 \).

There was a cultural difference found between US and non-US participants’ attitudes, but the interaction was not significant for any of the dependent variables. While there seems to be a trend indicating the US participants like the low tone of voice better and the non-US participants prefer the medium, there is no statistical support for this conclusion.
Further, participants were able to remember more information from the script in the medium, $M = 3.4$ items, and low groups, $M = 3.1$, compared to the high, and the ANOVA model was significant at $M = 1.8$, $F(2,81) = 10.5$, $p < .0001$.

Although there was a trend for the low and medium groups to be higher than the high voice tone group on these measures, the post hoc comparisons were not significantly different except in the case for the memory task, where the medium and low groups were found to be significantly higher than the high tone group (but not significantly different from one another) using the Tukey procedure set at $p = .05$. 
CHAPTER 5

DISCUSSION AND IMPLICATIONS

Introduction

In this study, I found that there was no relationship between a high employee tone of voice and positive customer attitudes. Participants were more receptive to the medium and low voice tone introductions. These findings show that there is still a relationship between tone of voice and customer attitudes, but the significance was lower than I expected earlier. The finding does not lend empirical support to the traditional industry assumptions that the 'positive' tone of voice is a high-pitched tone or that the high-pitched tone will lead to higher satisfaction. Instead, the experiment results show a 'positive' tone of voice is not necessarily 'high-pitched' tone, and it implies there might be some limitation to which an employee can raise their pitch.

Discussion

The result is contrary to the reasoning that derived from the current literature. The current study is among the first to empirically link the studies through three different fields; importance of tone of voice and its measurement, emotion expressed through a vocal tone, and an emotional contagion at a service encounter. By combining the previous studies from different fields in order to apply them in a hospitality context, my
study helps lay groundwork for additional research into the investigation of tone of voice and its impact on customer attitudes. Although the current study fails to solely identify a certain tone of voice that increases a customer attitudes rate, it certainly shows that the tone of voice does impact customer attitudes levels. The reasons why the high tone sample did not produce the highest attitudes are analyzed below, and why the medium and low tone of voice do not have significantly different attitudes rate.

Measuring Tone of Voice

First, there might be more factors in making a perception of a certain voice tone than a fundamental frequency. In Scherer (2003)'s study, voice characteristics can be measured by voice intensity, fundamental frequency, sentence contours, high frequency energy, and speech rate. The study implies a possibility that, while what the industry believes 'tone' of voice is what is important in the service encounter, actually it is other voice characteristics that significantly impact the encounter.

Second, previous studies show that a 'positive' tone of voice is higher than the other voice tone that derived from other emotions. Yet, the findings do not necessarily mean that higher tone of voice is a 'positive' tone of voice. Juslin & Laukka (2003) identified the characteristics of a 'positive' voice has a high fundamental frequency level. For example, their happy voice sample had fast speech rate/tempo, medium-high voice intensity and frequency energy, and high fundamental frequency level. However, there are few studies that suggest high tone of voice is a 'positive' tone of voice. As such, the reason why we have a contrary result is because the speaker's voice in the experiment did not bear positive emotions while it had a high frequency rate. Therefore, it can be
suspected that our experimental setting that tested the customer attitudes level through manipulating only pitch of the voice did not produce a ‘positive’ tone of voice and it fails to produce a ‘positive’ customer attitudes rate.

Emotional Expression and Recognition through Vocal Communication

The recognition time used in our experiment was too long to measure an impact on satisfaction levels from the tone of voice. Wurm et al. (2001) conclude that emotional tone of voice and linguistic content are integrated very early in the recognition process with emotional tone of voice being seen as one kind of contextual information. Their study suggests that the emotional recognition of a vocal expression occurs at an early stage of communication and that other factors such as actual wording and details of the delivered service would override the vocal impact on the perceived satisfaction during our 3-minute experiments.

Emotional Contagion between Employees and Customers

The studies that tested emotional contagion between employees and customers were conducted in a person-to-person environment. While Pugh (2001) proposes that employees’ emotions are transferred to customers through the service encounter, the results could have been different had the researcher used only vocal effects to measure the contagion. It can be suspected that in a service encounter with only a vocal impact, the emotional contagion is less likely to occur.
Implications and Suggestions for Further Study

Although previous literature suggests the important relationship between service providers' non-verbal communication and service receivers' perceived satisfaction, they did not isolate a tone of voice as the only independent variable to affect the satisfaction level. The study takes an exploratory role in linking the different levels and suggests different future studies based on its limitations. As discussed in Chapter 3, the primary limitation of the current study is that the sample may not represent the general population. Also, as shown earlier, there were limitations discussed in each literature category. First, there might be more factors in making a perception of a certain voice tone than fundamental frequency alone. Second, it does not necessarily mean that higher tone of voice is a 'positive' tone of voice. Third, the recognition time used in the experiment was too long or too short to measure an impact on customer attitudes levels from the tone of voice. Fourth, in a service encounter with only a vocal impact, the emotional contagion is less likely to occur.

Based on these limitations and results from the study, possible further studies are suggested below. First, studies with more representative sample should be conducted. Second, further research should investigate if there is any different result shown when researchers test the satisfaction level with voice samples sorted by "emotions". A speaker could be encouraged to make a voice by manipulating their emotions instead of changing the voice pitch. Then, a researcher can compare the satisfaction results from a 'positive' emotion group and neutral or negative emotions groups. For example, If experiments have been done by 'happy', 'disgusting', 'petrified', and 'neutral' like Wurm et al.'s study (2001), instead of having samples sorted with only frequency, the results
could have been different. This way, the investigator can also study the impact on customer attitudes with different aspects of voice characteristics.

Third, a study is needed that shortens or lengthens the time that a service recipient judges the satisfaction level based on tone of voice. It could be true that a tone of voice has a different impact on a shorter or longer period of service encounter than my 3-minute service encounter.

Fourth, there should be an experiment conducted in a real service environment where an employee can vary their tone of voice. This experimental setting is more likely to measure the impact of voice tone on the real customer service satisfaction rate because the customer actually receives their services with tone of voice under an environment that various factors might influence the satisfaction level. Hence, although a certain voice tone is suggested to attract the most satisfaction under a laboratory environment, the effects could be minimized in a real service environment due to the other factors.

Fifth, further study is still needed to investigate the impact on the customer attitudes from the tone of voice measured by Hz. The current study found that the satisfaction rate from voice tone samples ranging from 150 Hz and 250 Hz is somewhat higher than the sample for 250 Hz to 300 Hz. Therefore, a study is needed to investigate if there is a certain tone to increase the customer attitudes within the Hz range. I used only three samples, and the reason why we could not pinpoint a certain tone of voice that increases the satisfaction would be because the sample range was too vague. For example, a Hz range from 230-250 could attract the most customers as compared to the 210-230 group, if it were tested in more thinly cut group. The traditional belief could have been still right if a certain group finds the most satisfaction rate.
Finally, the results we found in the study suggest that there might be a cultural
difference between US and non-US customers. Therefore, a further study needs to
investigate this issue.

Implications for the Industry

Simply raising an employee’s tone of voice would not bring in higher customers’
satisfactions. Therefore, industry personnel can interpret the results of our study that, as
long as an employee has a ‘positive’ mind set, the emotions can be transmitted to
customer’s mind regardless of his/her tone of voice or the positive mind set can be
transferred with other communication factors such as facial expression and body
languages. Thus, training employees only by raising their voice tone does not seem to be
effective. Instead, the employee training should focus more on letting them have a
positive mind set and expressing that mind with all communication tools.
Figure 1  High Voice Sample Hz.

Figure 2  Medium Voice Sample Hz.

Figure 3  Low Voice Sample Hz.
Hello, welcome to our hotel. My name is XXX and I am at your service during your stay. I would like to escort you to your room and our bellmen have already brought your luggage to your room. Your room is located at the 3rd floor of the west wing. We are now at the main lobby on the 5th floor, and we will walk together to an elevator in the building. It will take about 5 minutes to walk to your room. Your room is located at the far end of the West wing, as you requested. This is a suite with 2 bedrooms, facing to the ocean. Here is the elevator. Please remember, you can reach your room only from the elevators in the west wing. If you take an elevator in the East wing, there is no way to reach your room. I've heard you like to swim and jog every day during your stay. Our gym is located on the first floor of this building. You may use this elevator to get to the gym. It is open 24 hours and every service is free for our hotel guests. Since the resort is seaside, you can go out to the beach for swimming and jogging. The door to our private beach is only available through the gym. Once you get to the gym, follow the instructions to the beach. If you get hungry after your exercise, please visit our Café anytime. The café is located on the 3rd floor, on the same floor with your room and open 24 hours. Of course you can use our 24-hour room service and there are 5 more restaurants in our resort. Please refer to the restaurant guide in your room, or simply call me for further information. Now we are at your room. Your room has a very beautiful view facing the Pacific Ocean. As you requested, we set up an air purifier in the living room and moved all the plants and flowers away from your rooms. The room temperature is set up at 75 degrees now and you can adjust the temperature through the air conditioner right on the wall by the master bedroom. All the instructions for any services you may need are all in the little book on your bedside. If you need further assistance, please press 0 on your
room phone and I or our service team will be always available for you. I know you are very tired from your long flight, so I would like to recommend you the best way to get relaxed. I highly recommend going down to the first floor to use our Spa. The therapists there are very professional and friendly. Even if you don’t know what kind of massage you want, they will let you know exactly what you need. Thank you for staying with us and I hope you have a wonderful time here.

*Source: from a personal experience
APPENDIX B

SURVEY

You are a guest at a famous hotel resort. You have just arrived for a vacation after a long flight. You have picked up your room key from the front desk and an employee is now about to escort you to your room. As the hotel employee escorts you to your room, the employee will explain to you information about the hotel and all it has to offer. The purpose of this survey is to get your opinions about the services provided by the hotel as explained by the employee. Enjoy your stay.

Now please relax and listen to your personal service provider’s instruction.

STOP! Don’t continue until the tape is finished.
Please fill out the following questions about the hotel:

1. How would you rate your overall attitude toward the hotel?

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<th>9</th>
<th>10</th>
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<tbody>
<tr>
<td>Favorable</td>
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<td>Unpleasant</td>
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<td>Negative</td>
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2. How likely would you be to stay in this hotel in the future?

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<tr>
<td>Not very likely</td>
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3. How likely would you be to recommend this hotel to your friends or family?

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<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not very likely</td>
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<tr>
<td>Very likely</td>
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</table>

4. How would you rate the hotel employee's level of friendliness?

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<td>Favorable</td>
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<td>Unfavorable</td>
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<tr>
<td>Unpleasant</td>
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<td>Negative</td>
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</table>

Continue on to next page
5. How would you rate the hotel’s customer service?

<table>
<thead>
<tr>
<th>Scale</th>
<th>Unfavorable</th>
<th>Favorable</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td>Unfavorable</td>
<td>Favorable</td>
</tr>
<tr>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td>Bad</td>
<td>Good</td>
</tr>
<tr>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td>Unpleasant</td>
<td>Pleasant</td>
</tr>
<tr>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td>Negative</td>
<td>Positive</td>
</tr>
</tbody>
</table>

6. Please fill-out how you currently feel:

a. Currently I am in a good mood.

<table>
<thead>
<tr>
<th>Scale</th>
<th>Strongly disagree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3 4 5 6 7</td>
<td>Strongly disagree</td>
<td>Strongly agree</td>
</tr>
</tbody>
</table>

b. I feel very cheerful.

<table>
<thead>
<tr>
<th>Scale</th>
<th>Strongly disagree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3 4 5 6 7</td>
<td>Strongly disagree</td>
<td>Strongly agree</td>
</tr>
</tbody>
</table>

c. For some reason I am not very comfortable right now.

<table>
<thead>
<tr>
<th>Scale</th>
<th>Strongly disagree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3 4 5 6 7</td>
<td>Strongly disagree</td>
<td>Strongly agree</td>
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</tbody>
</table>

d. At this moment I feel edgy or irritable.

<table>
<thead>
<tr>
<th>Scale</th>
<th>Strongly disagree</th>
<th>Strongly agree</th>
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</thead>
<tbody>
<tr>
<td>1 2 3 4 5 6 7</td>
<td>Strongly disagree</td>
<td>Strongly agree</td>
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Continue on to next page
e. I feel:

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<tr>
<td>Sad</td>
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<tr>
<td>Happy</td>
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<td>Depressed</td>
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<td>Cheerful</td>
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<td>Irritable</td>
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<tr>
<td>Pleased</td>
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Quiz regarding the employee directions:

1. Which elevator does the guest use to get to his/her room:
   a. Elevator in West Wing
   b. Elevator in East Wing
   c. Don’t know

2. Where is the gym located?
   a. 1st floor
   b. 2nd floor
   c. 3rd floor
   d. 4th floor
   e. Don’t know

3. Where is the Café located?
   a. 1st floor
   b. 2nd floor
   c. 3rd floor
   d. 4th floor
   e. Don’t know

Continue on to next page
4. How can the guest reach the employee if he/she needs further assistance?
   a. Press 0 on the room phone
   b. Press 8 on the room phone
   c. Call Bell Desk on the room phone
   d. Call Front Desk on the room phone
   e. Don’t know

5. How long does the gym operate per day?
   a. 8 hours
   b. 12 hours
   c. 18 hours
   d. 24 hours
   e. Don’t know

Background Information:
Gender:  M  F
Age: _______
Country where you grew up: ____________________________
About how many nights a year do you stay in hotels? _________
When was the last time you stayed in a hotel? __________________
REFERENCES


Scherer, K. (1982). Methods of research on vocal communication: Paradigms and


VITA

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Committee Member, Dr. Karl Mayer, Ph.D.
Graduate Faculty Representative, Dr. Michael LaTour, Ph.D.