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Ryan David Muniz
University of Arkansas, Fayetteville

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Congruent and Incongruent Effects of Ethnic Music on Ethnic Menu Item Selection

Congruent and Incongruent Effects of Ethnic Music on Ethnic Menu Item Selection

A thesis submitted in partial fulfillment
of the requirements for the degree of
Master of Science in Human Environmental Sciences

by

Ryan David Muniz
University of Arkansas
Bachelor of Arts in Philosophy, 2010

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University of Arkansas

This thesis is approved for recommendation to the Graduate Council.

Robert Harrington, Ph.D., MBA Thesis Director	Han-Seok Seo, Ph.D. Committee Member
Godwin-Charles Ogbeide, Ph.D.,MBA Committee Member	Kelly Way, Ph.D. Committee Member
Allen Powell, M.S. Committee Member	

Abstract

This study investigated what impact ethnic music had on ethnic menu item selection. College students were randomly divided into three groups and listened to one randomly assigned sound treatment in sensory booths. Three hundred and five participants completed the questionnaire with measures of expected price value and willingness to pay value. One of the groups listened to an Italian folk music, the second group listened to a Thai folk music, and the third group listened to a restaurant background noise in order to examine if the music will impact each participant menu items selection and perceived price values. The result of the study showed that Italian music had a significant influence on the participant's intention to select Italian cuisines. Similarly, Thai music showed some form of relationship between Thai music and Thai cuisine selections.

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I want to give exceptional thank you to my chair, Dr. Harrington for the opportunity in academia and working with me, helping me take my passion for music and apply it to research and for assisting me in opening doors to success. Dr. H you rock!

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Dedication

I dedicate this thesis to my Grandpa Standley and to my sister Sarah Muniz who did not get to see this chapter of my life. I hope that I would have made you proud. In my thoughts, I take you through the rest of my journey.

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Chapter 1-Introduction

Restaurants strive to create an atmosphere that attracts customers. There is a certain relationship developed by meeting and exceeding customer expectations. These expectations can influence the customers' satisfaction experience in a positive way (Kristensen, Martensen, and Gronholdt, 1999). The customers' satisfaction is invaluable in forming customer loyalty (Robinson, Abbott, and Shoemaker, 2005).

It is the customer who can then promote the restaurant by word-of-mouth and share their experience as it relates to: the atmosphere, the service and the food. This atmosphere in some restaurants might be relatively simple offering a place to dine-in for a quick meal. For other restaurants, there is a certain charm resulting in a longer form of the dining experience.

Restaurants represent a substantial source of revenue. The restaurant industry is projected to generate $660.5 billion in sales for 2013, thereby enabling many employment opportunities in the state of Arkansas. According the National Restaurant Association, 2013 is expected to be the 14th straight year that restaurant-industry employment will outpace overall employment. Overall, restaurants are expected to employ 13.1 million people, or 10 percent of the U.S. workforce. In 2013, Arkansas's restaurants are projected to register $3.5 billion in sales. In 2013, restaurants account for 114,200 Arkansans or 10% of employment in the state. By 2023, restaurants in Arkansas are projected to employ 130,000 people this is a 13.8% job growth (National Restaurant Association 2013).

Therefore, it is important to determine what strategies can be implemented in creating the right dining experience. The right dining experience can lead to increased sales for the restaurant, word-of-mouth increasing customer volume and loyalty through customer return.

In a restaurant there are many things to consider when meeting a customer's satisfaction level and a consideration is an atmosphere that would attract a first time customer thereby encouraging a return visit and that customer referring the dining establishment. In fact, the atmosphere of a restaurant can vary with each dining establishment and location. Both quality of a meal and atmosphere can influence the quality of the experience (Edwards and Gustafsson, 2008). Music is considered as an interior variable aspect of the atmosphere (Edwards and Gustafsson, 2008), often being heard through a restaurant's sound system or even being performed live.

Music also impacts the restaurant's environment and the consumer's behavior through their spending patterns. Studies have shown a positive impact with higher ticket averages during certain hours of dining while music was being played versus no music being played (Novak, Shilock, and Hargreaves, 2003).

Music was the main element in the physical dining environment according to Novak, Lopa, and Novak's study (2010) and it was determined that playing music had a positive impact on the restaurant patron's attitudes and provided high levels of pleasure during the dining experience (Novak, Lopa, and Novak, 2010).

Because musical conditions have shown a major contribution to consumer's perceptions in the restaurant's atmosphere, it is recommended that hotels and restaurants play some form of music to positively influence their guests (Magini and Thelen, 2008).

Music is found to be the central point of the restaurant's atmosphere. One such study saw it as more influential than the products being sold. The tempo of the music being played showed an increase in alcohol sales and provided evidence of the musical impact on profit margins (Milliman, 1986).

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According to Edwards and Gustafsson (2008) the meal quality and atmosphere both influence perception, however the quality of the atmosphere was difficult to assess quantitatively. In their study regarding atmospheric aspects, they accounted for variables such as music, noises, odors, table layout, and spacing as contributing to the atmosphere.

While many studies have shown the impact of music on dining behaviors, it is currently unclear how "music type" impacts menu item selection and price/value relationships. This study assessed the impact of music type along with restaurant background sounds as part of the restaurant's atmosphere. Specifically, it looked at the congruency effect of musical stimuli of ethnic music on ethnic food. Music was the independent variable which was randomly assigned to each participant in the study. This study is important for the restaurant industry in creating the right dining experience by using music and as a part of the atmosphere to generate more profits and customer loyalty. This study is related to Mehrabian and Russell's stimulus-organism-response model (1974) by incorporating musical stimuli. In addition, this study is related to a congruency framework; congruency can refer to "the extent to which auditory and food stimuli are appropriate for combination while eating or drinking the food" based on previous studies (Schifferstein and Verlegh, 1996; Seo and Hummel, 2011).

1.2 Definition of Terms

The terms below are defined or described for their use in this study.

Congruence- the quality or state of agreeing, coinciding, or being congruent (www.merriam-webster.com). Congruency can also be linked to learned associations (Laurienti, Kraft, Maldjian, Burdette, and Wallace, 2004).

Ethnic Menu Item Selection- For the purpose of this study, ethnic menu items consisted of Italain and Thai foods.

Restaurant Background Sounds- For the purpose of this study, the restaurant background sound track was downloaded and played during the experiment. The track consisted of dishes clanking, movement of people, conversations and interactions among people. The words restaurant sounds and restaurant background sounds were used interchangeably.

Ethnic Music- For the purpose of this study, ethnic music consisted of Thai Folk and Italian Folk Music which was obtained through a downloadable music search engine.

Chapter 2-Literature Review

In this chapter, the literature of related studies provides the components which influence menu item selection in a restaurant setting. The literature is broken down into four areas to help construct each piece to strengthen the understanding of this study. The four areas are 1) customer expectation 2) atmosphere 3) background music, and 4) congruency.

Purpose of Study

The purpose of this study was to investigate what impact ethnic music had on ethnic menu item selection through an assessment of music genres, various cuisines, and a selection of a three-course menu.

Problem Statement

Previous research has shown the impact of background music on customer behaviors in restaurant and retail settings. Indeed, it is important for restaurateurs and business owners to determine what type of music should be played for the purposes of building customer loyalty and customer satisfaction, which may result in higher revenues for them.

For the purpose of this study ethnic music was used as an independent variable as a means of measuring its impact on the ethnic menu item selection. This study investigated the impact that this background music had on ethnic menu item selection. It investigated customer expectations on price as well as the acceptability of music genres and cuisines (customer satisfaction). Finally, this study measured willingness to pay based on the conditions of a particular type of music or sound treatment that was being played in the background.

Background

Arousal is also important in the experience. There are levels of arousal studied by Wirtz, Mattila and Tan (2007) in which clippings of videos were used to determine low (60BPM) to high (145BPM) arousal standards from music. The given findings showed a positive impact on arousal within a given environment. The study showed these levels matched the expectations compared to those that were not found in negative environments. Mehrabian and Russell (1974) found that a stimulus in the environment can generate emotive reactions.

A study by Areni (2003) surveyed 90 hotel, restaurant, and pub managers about their experiences regarding atmospheric music and its effect on consumer behavior. These results were compared to current academic research, where it was found music can increase sales, influence purchase intentions, increase shopping and waiting times, decrease perceived shopping and waiting times, and influence dining speeds. The implicit theory of the managers that classical music is considered "up-market" was supported by academic research.

Sullivan (2002) investigated musical effects for the time spent in a restaurant as well as the amount of money spent citing that volume, tempo, style and no music at all were part of the tests. The key factor was the volume which impacted the length of time spent at the meal, where low volume music showed an increase in spending on both food and drinks. Sullivan also noted that no music at all provided the least amount of results in the setting.

In a restaurant setting, background music influences two groups of people: customers and employees. There is a certain type of physiological arousal that is increased by listening to music as demonstrated by Herrington and Capella (1994). The study suggested a certain emotional attachment in listening to music which was assigned a positive response. The positive response

to be considered was in matching music to the environment in which it is being played. It was also found that country music was the preferred style of music.

As seen in the previous studies, music has been shown to have an impact on customer behavior and perceptions. Oakes (2003) studied musical tempo in which higher tempo showed positive relationships on customers during wait times; whereby, the presence of this type of music created a more positive level among customers turning the duration of wait times in a positive response and attitude on the part of the customer.

In some cases, the perception of time spent in a given environment was found to be different than the actual time spent. Kellaris and Mantel (1996) found that the perception of time had a stronger influence on consumer behavior than the actual time spent due to both external stimuli and the experience of internal states.

Considerations for perception of time are taken into account while the effects of music on mood are explored in a study by Krahe and Bieneck (2012). This study used a music scale with an established model. There was a positive to negative distinction with respect to the music and how the music was applied. "Pleasant" music being played gave a lessening approach to aggression; whereas, the negation of this "pleasant" playing of "negative" music had the opposite effects.

It is imperative to consider the preference of music and how it is used psychologically. This goes into actual vs. perceived dining time as well as: 1) expenditures, 2) customer satisfaction, 3) customer enjoyment and 4) return rate. A study by Caldwell and Hibbert (2002) showed preference of music to have a positive impact on spending and affected dining time, but not the perception of the dining time. Tempo was found to have no effect.

As demonstrated in earlier studies, music plays a role in the perceptions and influences on the attitude of customers. As shown in the following research by North, Hargreaves, and McKendrick (2000), music was shown to impact sales through customer's spending. This study looked at two environments (a bank and a bar) where music would have a psychological impact on the customers. Classical music was played during a three week span in the study at the bank. Customers were asked to use adjectives from a 10 word choice of adjectives. Positive adjectives were chosen by customers of the bank. Therefore, the music showed it had a positive correlation with ratings of the bank customers and the classical music being played.

The second environment examined by North, Hargreaves and McKendrick (2000) was a bar. However, they used methods very similar to that used in the bank but in a shorter time span. As this was a nine-day study using the same three music variables: classical, pop, and no music. The responses were similar to the positive ratings the bank received proving the purchasing intentions of customers were influenced by music. It was also found that the time of day and volume were also factors in customer spending.

In an earlier study by Dube', Chebat and Morin (1995) background music was used to test for pleasure and arousal. The setting of the experiment was also conducted in a simulated bank setting and also measured the customer's desire to be associated with the bank staff. Classical music was used as the treatment with three different tempos. The music showed a positive impact on the customer and their desire to be associated with the bank staff.

In a more recent study conducted by North, Shilcock and Hargreaves (2003) the effects of musical styles in restaurants was the focus of this particular research. They used three different types of music variables: classical, pop, and no music. This was done over a three week period and the mean spending per head was measured from the customer's menu item selections.

Classical music was the dominant variable and had the strongest influence on spending increases. North, Shilcock and Hargreaves stated that classical music was considered "synergistic" to the overall environment.

Milliman (1986) found purchasing influences from the environment in which the product was purchased and the emotional state that was brought forth from background music. Milliman's findings further supported the role of music being a valuable asset to a given environment through engaging customers more within that environment based on the music and, equally conversely, disengaging the customers from the given environment based off the music. The variables of music that Milliman used were volume and tempo defining slow music at less than 72BPM and fast music defined at greater than 92BPM. The study showed slow music increased bar spendings by almost a $9 increase versus that of the faster music results. Also, once the customer was seated in the dining room after being at the bar, the dining times were significantly different when comparing slow music versus fast music as the customers took longer to dine in the slow music condition.

Music's influence on customer satisfaction was investigated by Magnini and Thelen (2008) by having classical music played in a fine dining restaurant. Classical music was rated higher than no music and was said to be "more intelligent" by the customers. Music increased arousal states of the customers. This nonverbal form of interaction with the customer and the environment provided evidence that music enabled a higher level of satisfaction with restaurant's customers.

The perceptions of the environment from both music and scents were investigated by Mattlia and Wirtz (2001). Music and scents are thought to bring a certain psychological impact. There were correlations of positive stimulation from music being paired with certain scents in an

environment which in turn showed the higher levels of satisfaction by the customers. The environment that was said to be more satisfying reported greater spending. The satisfied and aroused customer was a good combination for a business.

The findings of a meta-analytic review conducted by Garlin and Owen (2006) showed that background music had a positive impact on patronage toward retail businesses. The study showed that jointly music was the source for the businesses seeing recurrences in the spending of their customers along with the amount purchased. Further indicating that music had a positive impact on the product of the business.

A study by Jang, Liu and Namkung (2011) examined how authentic atmospherics affects consumer emotions and behavioral intentions in Chinese restaurants in the USA. The results from this study indicated that Chinese menu presentation and Chinese music had positive influences on customer emotions indicated use for future customer intentions.

An experiment conducted by Jacob (2006) used three types of background music: cartoon music, Top musical 40 and drinking songs at sound levels of 70db. It was randomly assigned to the participants in the bar. 93 participants were a part of this study and unbeknownst to their participation. The music treatments were played in 30 minute durations due to average customers time in this bar was typically 15 minutes. Measures for length of time and amount of money spent were taken into account. Drinking songs showed to have the strongest impact on length of time and the amount of money spent. This supported the style of background music having a positive effect on customers and their behavior.

A study done by Wilson (2003) consisted of 300 participants and examined the impact of the music in an Australian restaurant. It was designed to find how music influenced the perception of willingness to pay at the restaurant. The findings supported that in a 'no music'

condition a customer's willingness to pay was (Aus $17.12) which was significantly lower than the other four music treatments. Jazz received the highest willingness to pay (Aus $21.82). This suggested that music in a restaurant setting had a positive impact on customers spending and willingness to pay. Due to the timing of the testing the sales were not able to be accounted for because the highest and lowest sales hours were obtained outside of the testing time.

A study at a military dining facility was conducted by Feinstein, Hinkston, and Erdem (2002). It examined how various music genres impacted the selection the of ethnic menu item selection. Italian and Mexican music were randomly assigned to the participants who were to make selections of Italian, Mexican, and American cuisines during the experiment. A positive relationship was found on the Italian menu item selection while Italian music was playing. Mexican music did not have a significant impact on the selection of the Mexican menu item selection. Italian music was found to have the strongest impact on the selection of both Italian and Mexican menu items.

Congruency was tested in study by Spence, Shankar, and Blumenthal (2011). Although this study did not look specifically at music, it did look at sound treatment impact of congruency on oyster dishes. Two sound treatments were used in the consumption of oysters. One being sounds of the sea and the other being farmyard sounds. The participants receiving the sounds of the sea sound treatment rated the tasting of their oysters as more pleasant than the participants in the farmyard sound treatment. The findings supported congruency factors of the sea with the association of the particular food with the sounds being heard.

In another study related to music congruency, the auditory study showed that background noise/music impacted purchasing decisions (North, Hargreaves, & McKendrick, 1999). The study tested the sounds of French accordion music and German Bierkller music gauging its

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impact on the purchases of French wine and German wine. This resulted in a congruency of musical impact. In the French accordion music setting, 77% of wines purchased were French and when German Bierkeller music was being played, 73% of wines purchased were German (North, Hargreaves, and McKendrick 1999).

The previous research has led to the proposed hypotheses for this study on ethnic music's impact on ethnic menu item selection based on congruency studies. The first set of hypotheses were proposed based on congruency effects in previous studies such as the French accordion music and German Bierkller music on the selection of wine (North, Hargreaves, and McKendrick 1999). In addition, the congruence effect of the sounds of the sea with oyster consumption being more pleasant (Spence, Shankar, and Blumenthal 2011). Based on this congruence concept, the hypotheses are formally stated below.

H1a: Participants listening to Italian music will select Italian menu items more frequently than Thai menu items

H1b: Participants listening to Thai music will select Thai menu items more frequently than Italian menu items

H2a: Participants listening to Italian music will select Italian menu items more frequently than participants listening to the restaurant background sound treatments.

H2b: Participants listening to Thai music will select Thai menu items more frequently than participants listening to the restaurant background sound treatments.

The previous research suggested that customer's spending behaviors were impacted by music treatments. Although this study did not measure the exchange of funds for food consumption, it did measure expected price values for each menu as well as the willingness to pay for the overall 3-course meal selected. Jacob's (2006) study found that drinking music had

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impact on money spent and Wilson (2003) found that there was an increase in willingness to pay from the Jazz music treatment. Following earlier studies, the study presents the following hypotheses.

H3: Ethnic music treatment will increase expected price to pay for menu item.

H4: Ethnic music treatment will increase willingness to pay (WTP) for 3 course menu selection

Chapter 3 Methodology

Materials and Methods

The following sections discuss the methods used in planning and testing of the experiment. The discussion will include: pre-experiment, participants, musical stimuli, potential stimuli, procedure, data analysis, validity/reliability and results.

3.1 Pre-Experiment

The pre-experiment phase utilized three steps to ensure content validity and to strengthen the research design. This process included personal interviews, soliciting feedback for survey development, and a survey instrument pre-test.

Personal interviews were conducted with four local restaurateurs of Northwest Arkansas. These restaurateurs were of Italian and Thai cuisine restaurants. They were interviewed for the purpose of developing a simulated menu for this experiment. The simulated menu was then developed by taking the most popular items from each restaurant from their respective courses. There were two items from each cuisine (Italian and Thai) that were offered in a total of three courses (starter, entrée and dessert).

In the interview process, the restaurateurs were asked to offer their thoughts from practical experience with their selection of music in their establishment and whether or not it had an impact on their patrons. The general consensus was that music was indeed a major part of the restaurant and contributed to their successes of customer satisfaction and dividends. The music played in the restaurants that were interviewed consisted of romantic background music, cool jazz, Italian and Thai music. On average these establishments would seat 100 guests in a given day with average customer's spending at the Italian restaurants averaged $50 and the customer spending at the Thai restaurants averaged $15.

Following the restaurant interviews, the University of Arkansas Music Department was contacted for expert advice on the music treatments to be used during this experiment. It was suggested that the selected musical pieces had trappings of each culture (Italian and Thai). Resources for obtaining the music for this experiment were given and itunes (http://www.apple.com/itunes) was used for purchasing the music. Thai Folk Music, Italian Folk Music and Restaurant Ambient sounds were entered in the itunes search engine. The most popular albums were then selected, purchased and downloaded. The songs were then transferred to a Dell laptop that was used as the central music player for the experiment.

The survey instrument was developed and reviewed by a panel of five experts before being given to the participants. A pre-test was conducted with six individuals who would not participate in the study in order to see how the procedure of the experiment would flow and for effective time frames. This was done to assess any needs for adjustment in this study. There was no adjustment in the procedure.

3.2 Participants

For this study the participants were contacted directly through convenience sample with incentives for class points as well as having the option to have their name entered into a drawing for a one night packaged stay at the Capital Hotel in Little Rock, Arkansas. A total of 305 volunteers (241 females and 64 males) with an age range from 18-65 participated in this experiment. The study solicited 384 individuals to participate in the experiment. The total of 305 participants provides a 79% effective response rate. The mean age 22.85 years (SD =5.13) took part in this experiment.

In this study, Thai folk music, Italian folk music and restaurant background sounds were randomly assigned to each participant given the time they signed up for. To control for this

experiment, the participants were asked to rate their acceptability's of an array of music genres (rock, classical, pop, etc.) in a survey prior to the sound treatment. Sound treatments were randomly assigned to a maximum of 6 participants at a time. There was no significant difference in age in each music treatment group. As a result, there were 94 participants in the Thai folk music treatment, 112 participants in the Italian folk music treatment and 96 participants in the Restaurant background Sounds treatment.

3.3 Musical Stimuli

In order to measure the decibels for the music and restaurant sounds. A smart sensor digital sound meter (Model: AR824 Intel Instruments Plus) was used to measure the decibels for each sound treatment. For each sound treatment, the decibel reading ranged from a low in the 50s db to a peak in the 70s db. The exact range is provided in Table 3.1

Table 3.1

Decibel Range per Sound Treatment

Sound Treatment	Decibels
Thai Folk Music	[low 53.6 db to peak 72.4 db]
Italian Folk Music	[low 54 db to peak 72.9db]
Restaurant Background Sounds	[low 50 db to peak 71.3 db]

The music was played from a Dell laptop with connective adapters (Belkin speaker and headphone splitter & 3.5mm stereo audio headphone male to female extension cable-6 feet) and six individual headphones (one for each sensory booth). Each participant had their own individual headset (Sony Ultra Lightweight MDR-W08L Vertical In-The-Ear Headphones) during the treatment.

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The duration of each track is listed in Table 3.2. Each participant in this study received one sound treatment. While the length of each treatment varied in length, the given tracks were placed on repeat during the experiment to ensure the sound treatment was consistent for the duration of the experiment. All six participants (a total of six sensory booths) received the same sound treatment and each time period following the sound treatments were evenly distributed to ensure similar group sizes.

Table 3.2

Sound Treatment	Duration (minutes:seconds)
Thai Folk Music	6:47
Italian Folk Music	3:27
Restaurant Background Sounds	2:03

3.4 Potential Stimuli

The courses for the menu (see Table 3.3) were separated during the experiment. Each participant was given a menu with the four choices for each course. The participant was to choose one item they preferred most from each course. Then, at the bottom half of the course menu that was presented, each participant was asked to fill in their expected price to pay in a typical restaurant for each item.

Table 3.3

Menu Item Titles, Abbreviations and Descriptions

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<u>Starters</u>
Tom Yum Soup (TOM) –lemon grass, kaffir lime leaves, galangal, lime juice, fish sauce and crushed chili peppers
Cioppino (CIO) – Dungeness crab, clams, shrimp, scallops, squid, mussels and fish/fresh tomatoes in a wine sauce
Pho Phia Tod (PHO) - fried Spring rolls, served with sweet and sour sauce
Fried Calamari - tender rings and tentacles of baby squid flash fried
<u>Entrées</u>
Fettuccini Alfredo (FET) - Parmesan cream sauce with a hint of garlic, served over fettuccine
Pad Thai (PAD)- traditional rice noodles pan-fried with scallions and egg, garnished with peanuts and bean sprouts
Panang Curry (PAN)- Red curry Paste with coconut milk, bell peppers and basil leaves
Ossobuco Milanese (OSO) - braised veal shank, roasted vegetables, saffron risotto, gremolata
<u>Desserts</u>
Tiramisu (TIR)- layer of creamy custard set atop espresso-soaked ladyfingers
Chocolate Cake (CHO) - chocolate shavings, raspberries
Coconut Sticky Rice (COC) - basmati rice, sugar, coconut milk
Mango Sorbet (MAN) - slices of fresh mango and a little coconut rum/liqueur drizzled over

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Music was the variable being tested for having an impact on menu items that were selected during the experiment. The menu itself could be considered potential stimuli. The food choices stimulating hunger. There were no significant differences in hunger ratings when participants arrived for the experiment. The last portion of the experiment asked the participant to rate their hunger once more. It is suggested that the items on the food menu increased hunger ratings. Paired t-tests were ran for pre and post hunger ratings (Table 3.4) finding significant differences in ratings from the participants in pre-hunger compared to post hunger in all sound treatments.

Table 3.4

Pre vs. Post Hunger Levels

	Mean	N	S.D.	P-value
Thai Pre Hunger	4.05	94	1.60	
Thai Post Hunger	4.54	94	1.57	<0.001
Italian Pre Hunger	4.36	112	1.51	
Italian Post Hunger	4.82	112	1.49	<0.001
Restaurant Pre Hunger	4.15	99	1.63	
Restaurant Post Hunger	4.64	99	1.67	<0.001
Overall Pre Hunger	4.20	305	1.58	
Overall Post Hunger	4.68	305	1.57	<0.001

Table 3.5

Appeal of the Sound Treatment and Appeal of the Menu Ratings

	N	MIN	MAX	MEAN	S.D.
Italian Music	112	1	7	4.65	1.67
Italian Sound Menu	112	1	7	5.69	1.09
Thai Music	94	1	7	5.00	1.61
Thai Sound Menu Appeal	94	2	7	5.69	1.08
Restaurant Music	99	1	7	4.08	1.47
Restaurant Sound Menu Appeal	99	3	7	5.76	.96
Overall Sound	305	1	7	4.57	1.63
Overall Menu	305	1	7	5.71	1.05

There were some questions presented to the participants towards the end of the experiment before they took off their headsets asking to rate the appeal levels on the sound treatment they received as the appeal of the overall menu presented to them (Table 3.5). All participants received the same menu as far as content of items but the order of the menu items

was randomly assigned. The overall liking of the sound treatments have a mean of 4.57 on a 7 point scale while the overall liking of the menu itself have a mean of 5.71 on a 7 point scale providing that the menu was more appealing than any of the sound treatments overall.

3.5 Procedure

This section provides 1) a description of the experiment design, 2) a discussion on the actual steps of the participants, and 3) a breakdown of the steps that were involved from checking into their sign up time period.

The experiment was held in Room 16 in the Home Economics Building (University of Arkansas). Each participant signed up for specific time frames 9AM-11AM and 2PM-4PM for a one time participation that was open on Thursday's and Friday's for a span of 6 weeks. Once upon arriving the participant was asked to read and sign the consent form.

Each participant was asked to fill out a questionnaire prior to entering the sound room. In the questionnaire the participant was asked to assess their acceptability's of provided music genres, acceptability's of various cuisines, hunger ratings, the frequency of their dining out patterns as well as their preferences in dining establishments.

Once the questionnaire was completed, the participants then entered the door to the sound room and asked to find a sensory booth to begin the sound treatment portion of the experiment. The sound room consisted of 6 sensory booths therefore 6 participants could enter the room at once while each at their own sensory booth with a set of instructions to place their individual headsets on while waiting for further instruction.

A #2 pencil and Sony headphones were set up for each participant in the sensory booth. An instruction sheet with step #1 was provided asking the participant to securely place their

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headphones on and pass their questionnaire through the sensory booth window. The questionnaire being passed through the window was to signal the experiment supervisor on the other side of the booths that the participant's headphones were on and ready to proceed.

A starter menu was then passed through the window. At the top of the menu the participant was to select one of 4 starters that was most appealing. At the bottom part of the menu the participant was place value on their "expected price to pay" for EVERY starter item on the menu. Once this was complete the participant was to pass the menu back through the window. Then the sequence continued for the entrée menu and then the dessert menu.

Once the dessert menu was passed through the window, the participant was asked to fill out a few more questions asking if the sound in the headphones was appealing, the willingness to pay for the 3 course meal selected, overall liking of the menu and hunger rating.

The sounds (Thai folk, Italian folk, and restaurant background noise) were randomly assigned for each session while one sound treatment was given during that session. In other words the participants that were in the sensory booths during the same time period all received the same sound treatment. An overview of the procedure steps are shown in Table 3.6.

Table 3.6

Overview of Procedure Steps in Experiment

Procedure Steps

1. Participant checks in for their scheduled time (reservation).
2. Participant filled out the survey.
3. Once all participants were checked in and surveys were completed, they then were asked to come into the sound room and take a seat at one of the six booths.
4. A series of instructions were given throughout.
5. A series of menus were given thought.
6. Instructions #1 "Place your headset on securely and wait for further instructions."
7. Instructions #2 "Once your headset is on pass your survey through the window."
8. The survey was then passed through the window once the participants headset was in place.
9. The Starter Menu was presented to each participant. At the top of the menu the participant was to select ONE of four starters that was most appealing. At the bottom half of the menu. The participant was to place a value on their "expected price to pay" for EVERY starter item.
10. The Entree Menu was presented to each participant. At the top of the menu the participant was to select ONE of four entrees that was most appealing. At the bottom half of the menu. The participant was to place a value on their "expected price to pay" for EVERY entree item in a typical restaurant. (When completed the menu was passed back through the booth window).
11. Dessert Menu was presented to each participant. At the top of the menu the participant was to select ONE of four desserts that was most appealing. At the bottom half of the menu. The participant was to place a value on their "expected price to pay" for EVERY dessert item in a typical restaurant. (When completed the menu was passed back through the booth window).
12. Instructions #3 "Please fill out the remaining questions (pass back through the booth window) and wait for the light to turn on and then exit."

3.6 Data Analysis

Data analysis was performed using SPSS 20.0 for Windows[TM] (IBM SPSS Inc., Chicago, IL, U.S.A.). For the tests of hypotheses, binomial tests, ANOVA and post hoc tests using Tukey HSD were performed. To assess for any difference between treatment group characteristics, ANOVA tests were performed to determine if they were comparable groups. Additionally,

paired t-tests were run to assess potential stimuli effects for pre and post tests for hunger level of participants.

3.7 Validity

Several aspects of the research design were included to address validity issues and threats to internal validity. First, content validity is accuracy of the item or items being measured; this is a statistical property and is largely a "matter of expert judgment" (Vogt, 1999: 54). This relates to the measurement instrument, content in the menu items, descriptions and music treatments. As described earlier, expert judgment and input was solicited by academic and industry experts in the areas of survey or instrument development as well as ethnic music and menu knowledge.

Second, to minimize threats to internal validity as alternative explanations of the study findings, the research design used several steps including random assignment of music treatments, menu item order of presentation and controlling for any differences between participant groups based on key characteristics. Specifically, participants were asked to provide several pieces of information on key characteristics including age, monthly spending on food away from home, dining frequency, liking level of Thai cuisine, liking level of Italian cuisine, hunger level, and hours worked per week.

The mean levels for each of these characteristics were compared using ANOVA across the three treatment groups. For all tests, no significant differences existed between the sound treatment groups for Thai, Italian and restaurant sound treatments, indicating these represent comparable groups. Additionally, participants were also asked to rate their acceptability's of many ethnic cuisines from around the world as well as American food. There was no significant

difference in cuisine acceptability by sound treatment group. Overall mean and treatment means

of these tests are shown in Table 3.7.

Table 3.7

Results for Comparisons of Differences between Groups on Key Characteristics

Characteristic	Overall Mean	Thai Mean	Italian Mean	Restaurant Sound Mean	Sig
Age	22.85	22.67	23.23	22.59	ns
Monthly Spending on Dining	$91.44	$101.45	$88.64	$85.01	ns
Dining Frequency	4.72	4.85	4.54	4.77	ns
Thai Cuisine Liking Level	4.97	5.11	4.79	5.04	ns
Italian Cuisine Liking Level	6.43	6.44	6.49	6.36	ns
Pre-test Hunger Level	4.20	4.05	4.36	4.15	ns
Hours Worked Per Week	15.90	15.63	17.04	14.99	ns

ns indicates no significance at $P < 0.05$

Chapter 4 Results

The results were tested using binomial analysis and ANOVA. The findings from the tests for hypotheses 1 through 4 are provided in the following sections.

Hypothesis Testing

For tests of hypotheses H1 and H2, binomial analysis was used to assess significant differences between music and sound treatments based on the frequency of menu item selection in each treatment. Nonparametric tests are used to analyze data that do not meet the assumptions of parametric tests. In this case, the data in for hypotheses 1 and 2 are categorical in nature (yes = 1 [the menu item was selected] and no = 0 [the menu item was not selected]) and, therefore, are not normally distributed. Nonparametric tests are less powerful than parametric tests but can be used for both nominal and ordinal data types.

Because the data in these hypotheses have two possible outcomes (either yes or no), tests for differences were run using Binomial Tests. The Binomial Test procedure compares observed frequencies of two categories of a dichotomous variable to the frequencies that are expected under a binomial distribution with a specified probability parameter (Vogt, 1999). In hypothesis 1, the specified parameter was the frequency of each menu item selected in the Italian treatment compared to the Thai treatment. In the case of hypothesis 2, the study used the restaurant sound treatment as a control and as the test proportion for comparison.

Hypothesis 1a and 1b. The frequencies are shown in percentage form in Table 4.1 for Italian and Thai music treatment groups. These reflect the percentage of times each menu item was selected in each music treatment. A response was coded as 1 when the menu item was selected and coded as 0 when not selected by the participant.

Table 4.1 Frequency of Menu Item Selection by Italian and Thai Music Treatment

Menu Items	Italian Music	Thai Music	P-value
Italian Starters			
CIO	26.8	19.1	0.056
FRI	31.3	34.0	0.318
Italian Entrée			
FET	57.1	41.5	0.002
OSO	19.6	11.7	0.030
Italian Desserts			
CHO	43.8	35.1	0.054
TIR	28.6	26.6	0.382
Thai Starters			
PHO	31.3	39.4	0.060
TOM	10.7	7.4	0.200
Thai Entrée			
PAD	17.9	34.0	<0.001
PAN	5.4	11.7	0.013
Thai Desserts			
COC	2.7	8.5	0.004
MAN	25	29.8	0.170

The first hypothesis (H1a) of this study proposed the following: Participants listening to Italian music will select Italian menu items more frequently than Thai menu items. The results of the hypothesis testing for H1a indicates that participants listening to Italian music selected Italian menu items significantly more frequently than participants listening the Thai music for 4 of the 6 Italian menu items.

In the starter category, CIO (cioppino) was selected 26.8% of the time under the Italian music group compared to 19.1% of the time for the Thai music group (p = 0.056). Similarly, participants listening to Italian music selected Italian menu "entrées" more frequently than participants listening to Thai music. Specifically, FET (fettuccini) was selected 57.1% compared to 41.5% in the Thai treatment (p = 0.002) and OSO (ossobuco) was selected 19.6% compared to 11.7% in the Thai treatment (p = 0.03). For the dessert category, one Italian dessert was selected

significantly more often under the Italian music treatment compared to Thai treatment: CHO (chocolate cake) 43.8% vs. 35.1% (p = 0.054). As a whole, these results provide strong support for H1A indicating Italian folk music significantly increased the frequency of Italian menu item selections, particularly, entrée or main course selections.

The second part of hypothesis 1 (H1b) of this study proposed the following: Participants listening to Thai music will select Thai menu items more frequently than Italian menu items. The results of the hypothesis testing for H1b indicates that participants listening to Thai music selected Thai menu items significantly more frequently than participants listening the Italian music for 4 of the 6 Thai menu items.

In the starter category, none of the Thai menu items were selected significantly more frequently in the Thai music treatment compared to the Italian music treatment. In contrast, participants listening to Thai music selected Thai menu "entrées" more frequently than participants listening to Italian music. Specifically, PAD (pad Thai) was selected 34.0% in the Thai treatment compared to 17.9% in the Italian treatment (p <0.001) and PAN (panang curry) was selected 11.7% compared to 5.4% in the Italian treatment (p =0.013). For the dessert category, one Thai dessert was selected significantly more often under the Thai music treatment: COC (coconut sticky rice) 8.5% vs. 2.7% (p =0.004). As a whole, these results provide strong support for H1B indicating Thai folk music significantly increased the frequency of Thai menu item selections, particularly, entrée or main course selections.

Hypothesis 2a and 2b. The frequencies are shown in percentage form in Table 4.2 for Italian music, Thai music, and restaurant sound treatment groups. These reflect the percentage of times each menu item was selected in each music treatment. A response was coded as 1 when the menu item was selected and coded as 0 when not selected by the participant. In these tests,

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the restaurant sound treatment frequencies were used as the test proportion for comparison. In other words, the menu selection frequency for the restaurant sound group served as a baseline or control to compare menu item popularity to changes in popularity under Italian and Thai music treatments.

Table 4.2 Frequency of Menu Item Selection Comparing Restaurant Sounds vs. Italian and Thai Music Treatments

Menu Item	Restaurant (R)	Italian (I)	P-value R vs. I	Thai (T)	P-value R vs. T
Italian Starters					
CIO	17.2	26.8	0.000	19.1	0.348
FRI	32.3	31.3	0.450	34.0	0.396
Thai Starters					
PHO	43.4	31.3	0.006	39.4	0.247
TOM	7.1	10.7	0.101	7.4	0.505
Italian Main					
FET	37.4	57.1	0.000	41.5	0.000
OSO	17.2	19.6	0.281	11.7	0.097
Thai Main					
PAD	34.3	17.9	0.000	34.0	0.527
PAN	11.1	5.4	0.029	11.7	0.474
Italian Desserts					
CHO	43.4	43.8	0.507	35.1	0.063
TIR	20.2	28.6	0.021	26.6	0.082
Thai Desserts					
COC	8.1	2.7	0.017	8.5	0.496
MAN	28.3	25	0.254	29.8	0.412

The second hypothesis (H2a) of this study proposed the following: Participants listening to Italian music will select Italian menu items more frequently than participants listening to the restaurant background sound treatments. The results of the hypothesis testing for H2a indicates that

participants listening to Italian music selected Italian menu items significantly more frequently than participants listening restaurant sounds for 3 of the 6 Italian menu items.

In the starter category, CIO (Cioppino) was selected 26.8% of the time under the Italian music group compared to 17.2% of the time for the restaurant sound group (p <0 .001). Similarly, participants listening to Italian music selected Italian menu "entrées" more frequently than participants listening to restaurant sounds for one Italian main item. FET (fettuccine) was selected 57.1% compared to 37.4% in the restaurant sound treatment (p < 0.001). For the dessert category, one Italian dessert was selected significantly more often under the Italian music treatment compared to restaurant sound treatment: TIR (tiramisu) 28.6% vs. 20.2% (p =0.021). As a whole, these results provide strong support for H2a indicating significant Italian folk music effects compared to generic restaurant sounds with increased the frequency of Italian menu item selections for one item in each menu category (starter, entrée or main course and dessert).

The second part of hypothesis 2 (H2b) of this study proposed the following: Participants listening to Thai music will select Thai menu items more frequently than participants listening to the restaurant background sound treatments. The results provide no support for this hypothesis with no significant differences for any of the Thai menu items.

General folk music impact. When analyzing the results shown in Table 4.2, the findings indicate some folk music effects compared to the restaurant sounds that were not predicted in H2a or H2b. Specifically, under the Italian music treatment, three Thai food items were selected significantly less frequently than the restaurant sound treatment: PAD 17.9% vs. 34.3 (p < 0.001), PAN 5.4% vs. 11.1% (p =0.029), and COC 2.7% vs. 8.1% (p = 0.017). This may be the result or a function of Italian menu selection effects rather than restaurant sound or Italian folk music effects (i.e. by choosing Italian items more frequently, participants would

mathematically select Thai items less frequently). In the Thai folk music treatment, FET was selected significantly more frequently than in the restaurant sound treatment (41.5% vs. 37.4%, p < 0.001). This raises the question as to the impact of Thai folk music and its relationship to menu selection in general and perceptions or associations of Thai music with particular food styles or items.

Tests for Hypotheses 3 and 4

For hypotheses 3 and 4, the dependent variable was based on expected price for each menu item (H3) and willingness to pay for a 3 course menu selections (H4). Therefore, the study used ANOVA to compare mean differences among the three treatment groups: Italian, Thai and restaurant sounds. If significant differences were shown in the global ANOVA tests, post hoc tests using Tukey HSD were run to determine the specific differences between the three groups.

For tests of hypotheses 3 and 4, eight outliers were removed due to substantial differences in expected price for menu items and willingness to pay for the three course menu. Specifically, unrealistic responses in the willingness to pay value with a low of $0 and a high of $115 for the overall three course menu item selected. Once the outliers were removed, a shift in significance levels took place however it had no impact on the quantity of menu items selected at the significance level.

Hypothesis 3. Table 4.3 depicts the results of ANOVA ran to determine if there were significant differences in expected price for each menu item among the three sound treatments or groups. Based on this global ANOVA test, results indicate significant differences for four of the desserts with one entrée approaching significant.

Table 4.3

Differences Among Sound Treatments in Expected Price for Each Menu Item

Variable	Mean square between groups	Mean square within groups	F-value	(df)	P-value
TOM	14.88	9.74	1.53	(2, 295)	0.22
CIO	36.75	27.08	1.36	(2, 295)	0.26
PHO	2.29	7.82	0.29	(2, 295)	0.75
FRI	6.66	14.81	0.45	(2, 295)	0.64
FET	8.76	8.50	1.03	(2, 295)	0.36
PAD	25.41	9.62	2.64	(2, 295)	0.07
PAN	18.38	9.10	2.04	(2, 295)	0.13
OSO	33.23	30.27	1.10	(2, 295)	0.34
TIR	23.56	5.84	4.03	(2, 295)	0.019
CHO	17.54	3.66	4.79	(2, 295)	0.009
COC	11.31	2.89	3.92	(2, 295)	0.02
MAN	25.15	4.14	6.08	(2, 295)	<0.001

Based on significant differences shown with the ANOVA, post hoc tests were run to assess differences in expected price for the menu items. After post hoc tests were ran (Table 4.4), it can be seen that the differences among sound treatments for each menu item were found at the significant level in all four desserts: TIR (Tiramisu), CHO (Chocolate Cake), COC (Coconut Sticky Rice), MAN (Mango Sorbet). It was found that PAD (Pad Thai) was approaching significance but no statistical differences were found in the starter category and no statistical differences were found for the three other entrées in the category. These differences were most apparent in comparing mean levels of expected price for the Thai treatment versus the Italian or restaurant sound treatment.

Table 4.4

Post Hoc Tests for Differences by Sound Treatments in Expected Price for Each Menu Item

Variable	Thai	Italian	Restaurant
TOM	6.27	7.03	6.84
CIO	11.35	12.56	12.20
PHO	7.04	7.12	7.34
FRI	9.24	9.67	9.74
FET	11.68	12.27	12.06
PAD	10.36[a]	11.26[b]	11.25
PAN	9.87	10.68	10.57
OSO	15.29	15.93	16.48
TIR	6.70[a]	7.56[b]	7.58[b]
CHO	5.83[a]	6.58[b]	6.59[b]
COC	5.04[a]	5.57[b]	5.70[b]
MAN	5.45[a]	6.17[b]	6.47[b]

*** $p < 0.001$; **$p < 0.01$; *$p < 0.05$; [+]$p < 0.10$ (2-tailed)

When comparing the mean expected price for the Thai treatment versus other treatments, differences in mean expected price was significant for all four desserts. Specifically, TIR (Tiramisu) in Thai was \$6.70 (SD = 2.12) vs. Italian \$7.56 (SD = 2.15) (p=0.034) and in Thai vs. restaurant sound \$7.58 (SD = 2.95) (p=0.036); CHO (Chocolate Cake) in Thai was \$5.83 (SD = 1.74) vs. Italian \$6.58 (SD = 1.95) (p=0.019) and in Thai vs. restaurant sound \$6.59 (SD = 2.06) (p=0.02); COC (Coconut Sticky Rice) in Thai was \$5.04 (SD = 1.48) vs. Italian \$5.57 (SD = 1.71) (p=0.075) and in Thai vs. restaurant sound \$5.70 (SD = 1.92) (p=0.023); MAN (Mango Sorbet) in Thai was \$5.45 (SD = 1.65) vs. Italian \$6.17 (SD = 1.95) (p=0.038) and in Thai vs. restaurant sound \$6.47 (SD = 2.39) (p=0.002). It was found that PAD (Pad Thai) was approaching significance in Thai (\$10.36, SD = 2.64) vs. Italian \$11.26, (SD = 3.06, p=0.10) but

no statistical differences were found in the starters category and no statistical differences were found for the three other entrées in the category.

   Hypothesis 4. Table 4.5 depicts the results of ANOVA ran to determine if there were significant differences in willingness to pay for the three course menu selected by each participant and if this total price varied across the three sound treatments or groups. Based on this global ANOVA test, results indicate no significant differences exist in willingness to pay for three course menus selected within groups. The mean for each three course menu in each sound treatment are as follows: Thai = $26.44, Italian = $27.46, and restaurant sounds = $27.63.

Table 4.5

Differences Among Sound Treatments in Willingness to Pay for Three Course Menu

Variable	Mean square between groups	Mean square within groups	F-value	(df)	P-value
Three course menu price	38.83	82.31	0.47	(2, 295)	0.62

Summary

   Table 4.6 provides a summary of the findings for the tests of hypotheses 1 through 4. H1a (Italian music and menu item selection), H1b (Thai music and menu item selection) and H2a (Italian music versus restaurant sounds and menu item selection) received strong support. H3 (expected price to pay) received partial support and H2b (Thai music versus restaurant sounds and menu item selection) and H4 (impact on three course menu willingness to pay) received no support. Chapter five provides additional discussion on these results and implications.

Table 4.6

Summary of Results for Hypotheses

Hypothesis	Results
H1a: Participants listening to Italian music will select Italian menu items more frequently than Thai menu items	Strong support
H1b: Participants listening to Thai music will select Thai menu items more frequently than Italian menu items	Strong support
H2a: Participants listening to Italian music will select Italian menu items more frequently than participants listening to the restaurant background sound treatments.	Strong support
H2b: Participants listening to Thai music will select Thai menu items more frequently than participants listening to the restaurant background sound treatments.	No support
H3: Ethnic music treatment will increase expected price to pay for menu item.	Partial support
H4: Ethnic music treatment will increase willingness to pay (WTP) for 3 course menu selection	No support

Chapter 5 Discussion and Implications

Earlier research has used the Mehrabian and Russell stimulus organism-response (S-O-R) model in dining, retail, and other business settings examining music's impact in these settings. Music was the stimulus on customer's behavior and their responses in the music condition. Customer behaviors were measured on their satisfaction and spending in the environments previously mentioned. For the purpose of this study, ethnic music was used to as a stimulus with ethnic menu item selection as the main behavior or response.

This study examined the impact of ethnic music on ethnic menu item selection. The Mehrabian and Russell S-O-R model was supported by the stimulus of music having an effect on the participants in the menu item selection process more notably that the Italian music treatment showed significant support over the Thai music treatment and restaurant sound treatment.

There are subsets to the hypotheses, **H1a**: Participants listening to Italian music will select Italian menu items more frequently than Thai menu items and **H1b**: Participants listening to Thai music will select Thai menu items more frequently than Italian menu items. There was strong support in this study suggesting that restaurateurs should consider what type of music is to be played in their restaurants. The results showed to have a correlation in which menu items were selected in the given sound treatments.

The managerial implications of this study can help restaurateurs determine what type of music is to be played in the restaurant which can stimulate their customers. Music has shown to have a positive effect in previous research and could provide stronger customer base by the type of music being played. In the competitive restaurant industry, music is an element of the

atmosphere that can drive certain behaviors. Those behaviors in this study are related to menu item selection.

Hypothesis 2 had two subsets, **H2a**: Participants listening to Italian music will select Italian menu items more frequently than participants listening to the restaurant background sound treatments. **H2b:** Participants listening to Thai music will select Thai menu items more frequently than participants listening to the restaurant background sound treatments. H2a had results of Italian music having strong support on Italian menu item selection opposed to the restaurant background sound treatment however H2b interestingly resulted in no support. Thai music had no impact on Thai menu item selection versus the restaurant background sounds. The results for the second hypothesis may be due to the familiarity with the ethnic cuisines on the menu. Restaurateurs may want to offer familiar cuisines for their customers.

The last of the hypotheses were **H3**: Ethnic music treatment will increase expected price to pay for menu item **H4**: Ethnic music treatment will increase willingness to pay (WTP) for 3 course menu selection. The expected price values had partial support on the dessert selections however no support was given for the starters or entrées; this may have had something to do with the actual music treatment taking effect towards the end of the menu item selection process. Overall the expected price values that were provided by the participants could be taken into consideration by restaurateurs in the competing markets on what their customer's would expect to pay. It could be the case that the customer's expectation of price to pay might be lesser than what the set price is on a particular menu item in a restaurant or their might be a higher expectation of the set price on a particular menu item in a restaurant There was no support for willingness to pay for the 3-course meal selected by participants. This evaluation could be due to

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that there was no actual restaurant facility being used and no purchases were taking place as well as food consumption.

The purpose of going to a restaurant plays a role in price value relationships. For instance if it is a casual quick lunch or dinner, the expected price value to pay might be lesser than if the visit was for a special occasion. In the pre-experiment interview part of this study it was found that ticket averages were higher in Italian restaurants compared to Thai restaurants. Italian menu items were also rated higher for expected price to pay. Thus suggesting that Thai restaurants might be thought of as more of a casual quick kind of meal where Italian restaurants might actually be more suited for longer sit down kind of meal. The service quality expectation should be considered due to what type of experience the customer is looking for. If they are paying a higher price for a meal their might be an expectation of a certain type of service quality.

For this study although there were no significant findings in price value relationships, there were significant ratings in pre and post hunger by the participants. This is something managers can use as a tool to help stimulate their customers by providing descriptions of the actual menu item, using social media as a stimulus, and providing take home menus for their customers igniting their thoughts for an increase in hunger. If the customer is already leaving full the menu could still stimulate the customer to return or that particular customer sharing the menu with a friend thus producing the word of mouth advertisement.

Chapter 6 Conclusions

The key findings of this study were that ethnic music had an impact on ethnic menu item selection. Ethnic music did not impact price relationships with the expected price to pay compared to the willingness to pay. Results did show an increase in pre and post hunger ratings by the participants.

Limitations and Future Research

The results of this study should be interpreted with caution as there are limitations. This study was not in a real restaurant setting, it was conducted in sensory booths which were cost effective and easily accessible for the research. If this study was conducted in a real restaurant setting the results may have been enhanced and more generalizable to the population. Add other limitations – regional study, age group, income level, etc.

The findings for future research can examine the impact of ethnic music in ethnic restaurants. It is also suggested that other types of music treatments be used for future research to assess what types have the most impact on restaurant customers.

Another limitation to this study is that there was no actual food consumption. This was due to that there was no easily accessible restaurant facility to conduct the experiment in which would have enabled a measure of true spending by restaurant customers.

This study did not measure the participant's knowledge base for each cuisine. This is a limitation as there could have been more familiarity with a certain type of cuisine (Thai or Italian) on the menu used in the experiment. Future research can examine the participant's

knowledge base of each type of cuisine and even an additional type of ethnic cuisine can be added to the menu with an additional type of ethnic music treatment.

The population of this study was not generalizable outside the region as preferences may vary from region to the next. The participants were also of a young population with a mean of 22.85 years of age with a mean of 15.90 hours worked in a week. This could account for the results of the price relationships measured in this study given that they were not part of the typical 40 hour work force. This could have impacted the willingness to pay measure.

This study investigated the role of ethnic music on ethnic menu item selection. More research should be conducted in actual restaurant settings thus being a tool for restaurateurs being able to set the right type of music for positive impact on their customer base as well as their business quality and revenue.

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Appendix

APPENDIX 1

Implied Consent Form

Food and Sound Research

Information Letter

Dear Potential Participant,

You are invited to take part in the research project identified above conducted by
Dr. Robert J. Harrington and Ryan Muniz at the University of Arkansas.

This research project examines the potential impact sound has on menu item selection.

Who can participate in the research?
Anyone at least 18 years of age

What choice do I have?
Participation is **entirely voluntary**. If you decide to participate, you may withdraw from the project at
any time without giving a reason and without any academic penalty. The researcher(s) may also withdraw a participant if it is considered in the participant's best interest or it is appropriate to do so for
another reason. If this happens, the research(s) will explain why and advise you about any follow-up
procedures or alternative arrangements as appropriate.

Confidentiality: All information collected will be kept confidential to the extent allowed by law and University policy. All data will be combined and only group summaries will be included in the survey reports. No data will be reported in a manner that would allow a reader to associate any responses to individual respondents. Results from this research will be reported as aggregate data. This consent form will be saved separately from your survey, and all survey responses will be recorded anonymously.
.
What will I be asked to do?

You will be asked to
• Assess your acceptability of provided music genres
• rate your acceptability of various cuisines
• select a course from each in the 3 course food menu (not to be consumed)
- Analysis of aggregate data from the completed sensory evaluation survey forms will be summarized in a written report.
- Should a participant not be able to participate in one or more components based on the personal reasons, they may do so.

What are the risks and benefits of participating?
There are no anticipated risks in this study. You are only being asked to fill a questionnaire while listening to a sound the researcher has selected for your headset.

Your name will be entered in a drawing for a packaged stay at the Capital Hotel in Little Rock, AR as an incentive for your efforts in this study. You will be notified by the contact information (email and/or phone numner) you provided when you signed up for this study.

How will the information collected be used?
The data provided will be used in the research on food and sound, and will form part of a written report. If a participant requests a copy of the report, it will be sent via email.

What do I need to do to participate?
If you agree to participate in this study, please read the informed consent below and fill out the questionnaire. By filling out and submitting the questionnaire you are consenting to participate. A copy of the consent form can be obtained through Dr. Harrington.

If you have any questions or concerns about this study you may contact my advisor Dr. Robert J. Harrington through any of the means below. For questions or concerns about your rights as a research participant, please contact Ro Windwalker, the University's Compliance Coordinator, at (479)575-2208 or by e-mail at irb@uark.edu

Robert J. Harrington
 Professor
Hospitality and Restaurant Management
Dale Bumpers College of Agricultural, Food and Life Sciences
University of Arkansas
HOEC 118
Fayetteville, AR 72701
Phone: 479.575.4700
Email: rharring@uark.edu

Ryan Muniz
MS candidate
Hospitality and Restaurant Management
Dale Bumpers College of Agricultural, Food and Life Sciences
HOEC Room 16
Fayetteville, AR 72701
Phone: xxx.xxx.xxxx
Email: xxxxxx@uark.edu

Informed Consent: I have read the description, including the purpose of the study, the procedures to be used, the potential risks and side effects, the anonymity of all responses, as well as the option to withdraw from the study at any time. Each of these items has been explained to me by the investigator. By filling out and submitting the questionnaire I am consenting to participate

Thank you for considering this invitation,
Robert J. Harrington, PhD
Ryan Muniz, MS candidate

*Your name on this consent form will be used only to enter you into the drawing and will not be connected to your survey responses in any way.

Print Name:_____
Signature:_____
Date:_____

MENU-STUDY #1

Starters

Tom Yum Soup –lemon grass, kaffir lime leaves, galangal, lime juice, fish sauce and crushed chili peppers

Cioppino – Dungeness crab, clams, shrimp, scallops, squid, mussels and fish/fresh tomatoes in a wine sauce

Pho Phia Tod - fried Spring rolls, served with sweet and sour sauce

Fried Calamari - tender rings and tentacles of baby squid flash fried

Entrées

Fettuccini Alfredo- Parmesan cream sauce with a hint of garlic, served over fettuccine

Pad Thai- traditional rice noodles pan-fried with scallions and egg, garnished with peanuts and bean sprouts

Panang Curry- Red curry Paste with coconut milk, bell peppers and basil leaves

Ossobuco Milanese - braised veal shank, roasted vegetables, saffron risotto, gremolata

Desserts

Tiramisu- layer of creamy custard set atop espresso-soaked ladyfingers.

Chocolate Cake- chocolate shavings, raspberries

Coconut Sticky Rice- basmati rice, sugar, coconut milk

Mango Sorbet - slices of fresh mango and a little coconut rum/liqueur drizzled over

Starters

Circle the starter that appeals to you most

Tom Yum Soup –lemon grass, kaffir lime leaves, galangal, lime juice, fish sauce and crushed chili peppers

Cioppino – Dungeness crab, clams, shrimp, scallops, squid, mussels and fish/fresh tomatoes in a wine sauce

Pho Phia Tod - fried Spring rolls, served with sweet and sour sauce

Fried Calamari - tender rings and tentacles of baby squid flash fried

Please fill in the price you would EXPECT to pay next to each starter in a typical restaurant

Tom Yum Soup $_____

Cioppino $_____

Pho Phia Tod $_____

Fried Calamari $_____

*SLIDE THIS FORM THROUGH THE WINDOW ONCE COMPLETE

Entrées

Circle the starter that entrée that appeals to you most

Fettuccini Alfredo- Parmesan cream sauce with a hint of garlic, served over fettuccine

Pad Thai- traditional rice noodles pan-fried with scallions and egg, garnished with peanuts and bean sprouts

Panang Curry- Red curry Paste with coconut milk, bell peppers and basil leaves

Ossobuco Milanese - braised veal shank, roasted vegetables, saffron risotto, gremolata

Please fill in the price you would EXPECT to pay next to each entrée in a typical restaurant

Fettuccini Alfredo $_____

Pad Thai $_____

Panang Curry $_____

Ossobuco Milanese $_____

*SLIDE THIS FORM THROUGH THE WINDOW ONCE COMPLETE

Desserts

Circle the dessert that appeals to you most

Chocolate Cake- chocolate shavings, raspberries

Coconut Sticky Rice- basmati rice, sugar, coconut milk

Mango Sorbet - slices of fresh mango and a little coconut rum/liqueur drizzled over

Tiramisu- layer of creamy custard set atop espresso-soaked ladyfingers.

Please fill in the price you would EXPECT to pay next to each dessert in a typical restaurant

Tiramisu $_____

Chocolate Cake $_____

Coconut Sticky Rice $_____

Mango Sorbet $_____

*SLIDE THIS FORM THROUGH THE WINDOW ONCE COMPLETE

Appendix 6

Questionnaire Study #1

1. **What is your preferred restaurant type when dining out?**
   ___Quick service restaurant

   ___Casual dining restaurant

   ___Mid-scale restaurant

   ___Fine-Dining Restaurant

   ___Other (describe)_____

2. **How often do you eat out at any foodservice establishment?** (IE: restaurant, quick service, etc)
   ___Never

   ___1 time per year

   ___1 time per month

   ___1 time per week

   ___2 times per week

   ___3 or more times per week

3. **How hungry are you? (Check the box that applies)**

Extremely NOT Hungry	Moderately NOT Hungry	Slightly NOT Hungry	Indifferent	Slightly Hungry	Moderately Hungry	Extremely Hungry

4. **How much do you LIKE or DISLIKE each cuisine?** (Check in the box that applies to each cuisine)

Dislike Extremely	Dislike Moderately	Dislike Slightly	Indifferent	Like Slightly	Like Moderately	Like Extremely

American

Dislike Extremely	Dislike Moderately	Dislike Slightly	Indifferent	Like Slightly	Like Moderately	Like Extremely

Chinese

Dislike Extremely	Dislike Moderately	Dislike Slightly	Indifferent	Like Slightly	Like Moderately	Like Extremely

Japanese

Dislike Extremely	Dislike Moderately	Dislike Slightly	Indifferent	Like Slightly	Like Moderately	Like Extremely

Indian

Dislike Extremely	Dislike Moderately	Dislike Slightly	Indifferent	Like Slightly	Like Moderately	Like Extremely

Thai

Dislike Extremely	Dislike Moderately	Dislike Slightly	Indifferent	Like Slightly	Like Moderately	Like Extremely

Mexican

Dislike Extremely	Dislike Moderately	Dislike Slightly	Indifferent	Like Slightly	Like Moderately	Like Extremely

Italian

Dislike Extremely	Dislike Moderately	Dislike Slightly	Indifferent	Like Slightly	Like Moderately	Like Extremely

French

Dislike Extremely	Dislike Moderately	Dislike Slightly	Indifferent	Like Slightly	Like Moderately	Like Extremely

Greek

Dislike Extremely	Dislike Moderately	Dislike Slightly	Indifferent	Like Slightly	Like Moderately	Like Extremely

Other

Dislike Extremely	Dislike Moderately	Dislike Slightly	Indifferent	Like Slightly	Like Moderately	Like Extremely

(Fill in if desired) _____

5. **Rate your ACCEPTABILITY in the following genres of music (check the box that applies to each genre)**

Rock

Dislike Extremely	Dislike Moderately	Dislike Slightly	Indifferent	Like Slightly	Like Moderately	Like Extremely

Country

Dislike Extremely	Dislike Moderately	Dislike Slightly	Indifferent	Like Slightly	Like Moderately	Like Extremely

Blues

Dislike Extremely	Dislike Moderately	Dislike Slightly	Indifferent	Like Slightly	Like Moderately	Like Extremely

R&B

Dislike Extremely	Dislike Moderately	Dislike Slightly	Indifferent	Like Slightly	Like Moderately	Like Extremely

Hip Hop

Dislike Extremely	Dislike Moderately	Dislike Slightly	Indifferent	Like Slightly	Like Moderately	Like Extremely

Pop

Dislike Extremely	Dislike Moderately	Dislike Slightly	Indifferent	Like Slightly	Like Moderately	Like Extremely

Classical

Dislike Extremely	Dislike Moderately	Dislike Slightly	Indifferent	Like Slightly	Like Moderately	Like Extremely

Jazz

Dislike Extremely	Dislike Moderately	Dislike Slightly	Indifferent	Like Slightly	Like Moderately	Like Extremely

Electronic

Dislike Extremely	Dislike Moderately	Dislike Slightly	Indifferent	Like Slightly	Like Moderately	Like Extremely

Other

Dislike Extremely	Dislike Moderately	Dislike Slightly	Indifferent	Like Slightly	Like Moderately	Like Extremely

(Fill in if desired) _____

6. **Do you have any hearing impairments? Circle YES or NO**
   If yes,
   explain:_____

7. **What genre of music do you prefer when dining**
   out?_____

8. **What is your average monthly spending for dining out? $_____**

9. **Do you have any food allergies? Circle YES or NO**

10. **If so what are the allergies? (Check in the boxes that apply)**

Milk   Fish   Eggs   Wheat   Citrus   Garlic   Yeast   Nuts   Shellfish
                                     Gluten

Other

If other, please fill
in:_____

11. **Circle if you are MALE or FEMALE?**

12. **Are you currently employed   YES or NO ? (Circle)**

13. **If YES (currently employed) approximately how many hours a week do you work?**
    _____

14. **What year were you born in? _____**

15. Which is your current education level?

  ___ Freshman ___Sophomore ___Junior

  ___Senior ___Graduate ___Other (Fill In):_____

16. Which level of education are you pursuing?

  ___ High school   ____Some College ___Vocational

  ___Associate's   ____Bachelor's

  ____Master's ____Ph.D

17. What is your current major? _____

18. Did you find the sound in your headset appealing? (Check the box that applies)

Extremely Unappealing	Moderately Unappealing	Slightly Unappealing	Indifferent	Slightly Appealing	Moderately Appealing	Extremely Appealing

19. How much would you be WILLING to pay for THIS 3 course meal you SELECTED today? $_____

20. Overall did you find this menu to your liking? (Check the box that applies)

Dislike Extremely	Dislike Moderately	Dislike Slightly	Indifferent	Like Slightly	Like Moderately	Like Extremely

21. How hungry are you? (Check the box that applies)

Extremely NOT Hungry	Moderately NOT Hungry	Slightly NOT Hungry	Indifferent	Slightly Hungry	Moderately Hungry	Extremely Hungry

Appendix 7

IRB Approval Letter

March 20, 2013

MEMORANDUM

TO: Ryan Muniz
                                 Robert Harrington

FROM: Ro Windwalker
                                 IRB Coordinator

RE: New Protocol Approval

IRB Protocol #:   13-03-559

Protocol Title: *Congruent and Incongruent Effects of Ethnic Music on Ethnic*
                                 Menu Item Selection

Review Type: ☒ EXEMPT ☐ EXPEDITED ☐ FULL IRB

Approved Project Period: Start Date: 03/20/2013 Expiration Date: 03/19/2014

Your protocol has been approved by the IRB. Protocols are approved for a maximum period of one year. If you wish to continue the project past the approved project period (see above), you must submit a request, using the form *Continuing Review for IRB Approved Projects*, prior to the expiration date. This form is available from the IRB Coordinator or on the Research Compliance website (http://vpred.uark.edu/210.php). As a courtesy, you will be sent a reminder two months in advance of that date. However, failure to receive a reminder does not negate your obligation to make the request in sufficient time for review and approval.   Federal regulations prohibit retroactive approval of continuation. Failure to receive approval to continue the project prior to the expiration date will result in Termination of the protocol approval. The IRB Coordinator can give you guidance on submission times.

This protocol has been approved for 300 participants. If you wish to make *any* modifications in the approved protocol, including enrolling more than this number, you must seek approval *prior to* implementing those changes.   All modifications should be requested in writing (email is acceptable) and must provide sufficient detail to assess the impact of the change.

If you have questions or need any assistance from the IRB, please contact me at 210 Administration Building, 5-2208, or irb@uark.edu.