THE INFLUENCES OF BACKGROUND MUSIC ON THE BUYING

BEHAVIOR OF CLOTHING STORE CUSTOMERS IN ARMENIA

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ABSTRACT

I analyzed the influences of in-store background music on customer attitudes and behavior, by systematically manipulating fast and slow music tempi and measuring their effects on weekly average sales volumes and pace of in-store customer flow. My biggest finding is that fast-paced music significantly and negatively affects average sales volumes. In addition to that, strong foundations were set for the exploration of the inverse relationship with slow-paced treatment.

Keywords: retail atmospherics, music tempo, fast-paced music treatment, slow-paced music treatment, influences on sales volumes, pace of customer flow

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1. Introduction

General introduction to the wide topic of interest

Up to the present day, there has been unneglectable yet certainly questionable evidence in regards to the amount and quality of research and study put into discovering the effects and influences of in-store background music on various aspects of store atmospherics. From shaping certain employee/customer attitudes to significantly influencing the time and monetary amount spent in the confines of a certain shop, background music has proven to be a powerful tool in the hands of the interested, if used wisely. Keeping in mind the countless research and academic study conducted in this and similar fields and the fact that the appalling majority of those have, in one way or the other, had a Western origin and thus been a direct influence of the social and cultural influences of the local population, this research study concentrates on unearthing the possible influences of in-store background music on customer buying behavior in a significantly different geographic and cultural setting – in Armenia.

Narrowing down to the primary research topic

Substantial first-hand information was gained as a result of in-depth one-on-one interviews with retail store managers, in Armenia, in an effort to assess their level of knowledgeability of the existence and widespread usage of in-store background music as a marketing tool to reach desired sales volumes and in-store customer flow, before any in-field work had commenced. The results obtained greatly surprised, as three out of four large retail chain store managers highly doubted the efficiency and viability of having pre-programmed in-store background music to attempt to influence customer behavioral patterns. This disposition necessitated and further demonstrated that Armenia seems to be lagging behind the practice of

utilizing every possible feature of store atmospherics for increased control over in-store customer behavior.

Laying the groundwork for the Literature Review

This study intends to find just how significant the influences of fast- and slow-background music treatments are on in-store customers and their behavior and to express it in interpretable quantitative and qualitative measurements. Based on the evidence derived from the research on supermarket shoppers, [1] this study, also, intends to further experiment whether or not store customers' average weekly spending, under slow-paced background music, would significantly offset the figures obtained under periods of fast-paced music treatment. Apart from that, an attempt was made to evaluate the differences in pace of in-store customer flow affected by slow-paced and fast-paced music treatments.

The consequent results will serve as a means of informing, as well as, laying the groundwork for current and future retailer companies to harness the benefits and advantages from their own experiments with various in-store background music treatments and its influences. It will also assist by filling in the voids that are apparent in local research studies concerned with behavioral marketing, as well as, complement and add to the existent knowledge worldwide.

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[1] Milliman, Ronald E. "Using Background Music to Affect the Behavior of Supermarket Shoppers." *Journal of Marketing* 46, no. 3 (1982): 86. doi:10.2307/1251706.

Research Question statement

"The Influence of Background Music on the Buying Behavior of Clothing Store

Customers in Armenia"

While the above-stated question is the main theme of this study, stemming from the central question are the following sub-questions that have been explored in an attempt to quantify the influences (and the level of significance) of different treatments of in-store background music on customers:

- *the influences of fast-paced background music (separately-taken) on average weekly sales revenues (estimated in AMD)*

- *the influences of slow-paced background music (separately-taken) on average weekly sales revenues*

- *the influences of fast- and slow-paced background music (in relation to each other) on average weekly sales revenues*

- *the influences of fast-paced background music on the pace of in-store customer flow*

- *the influences of slow-paced background music on the pace of in-store customer flow*

Main findings

The main findings that emerged as a result of thorough quantitative and qualitative studies claimed that fast-paced music significantly and negatively affects average sales volumes. In addition to that, strong foundations were set for the exploration of the inverse relationship with slow-paced treatment.

In support of the intended reader of this paper, the opening part will present a quick retrospective of how in-store background music became an irreplaceable yet much-underestimated element of general store atmospherics with the use of multiple peer-reviewed academic journal publishing and general studies in the field of behavioral marketing.

2. Literature review

Historical overview of music and its changing role in society

Historically there have been multiple phases through which music and its attributes, subject to influencing certain customer behavior, have gone and become the factors that most marketers in retail stores and supermarkets alike manipulate extensively. However, this has not been the main and most widespread usage of background music, but much on the contrary, music, from the beginning of times, has not been considered a part of a phenomenon called store atmospherics, but rather an entertainment medium that would put its listeners into a certain emotional state. It was later that 1974 that a famous university professor and marketing scientist Philip Kotler published his already very renowned study "Atmospherics as a Marketing Tool" where he pointed out that people's buying decisions were increasing getting to be much less about the actual product or service and much more about the *atmosphere* of the space in which it was located.[2] Indeed, Kotler himself went on to separate the atmosphere of the space into various dimensions in which the *aural* dimension was mainly defined by volume and pitch, both of which are fundamental musical variables. The same year another very prominent marketing study came out by Mehrabian and Russell called the Pleasure, Arousal, Dominance (PAD) model claiming that there were three main independent emotional dimensions to which people

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[2] Kotler, Philip. "Atmospherics as a Marketing Tool." *Journal of Retailing*, 1974.

responded and which ultimately changed their states of feelings in certain physical environments.[3] These two research studies alone were already enough to put the conventional thinking around music aside and place background music in pole position to be considered as one of those variables in in-store physical environments that people could react to in one way or the other.

Background music as a probable variable in physical environments

Robert J. Donovan, a professor of Marketing in New York University, was one of the proponents of the new theory claiming that retail store environments, as important as they were for the daily consumers and as routine and trivial as they might have seemed to a businessman of those times, could be experimented with in regards to *"environmental psychology".* The idea was to move on from conventional methods of experimenting with the features of physical environments in such "formal" places as work environments, hospitals, prisons and other institutions amongst them.[4]

Background music and environmental phycology: approach-avoidance model

The cornerstone to Donovan's subsequent research study was the conclusion drawn from the Mehrabian-Russell model postulating that "all the responses to an environment can be

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[3] Bakker, Iris, Theo Van Der Voordt, Peter Vink, and Jan De Boon. "Pleasure, Arousal, Dominance: Mehrabian and Russell Revisited." *Current Psychology* 33, no. 3 (2014): 405-21. doi:10.1007/s12144-014-9219-4.

[4] Donovan, Robert, and J.R. Rossiter. "Store Atmosphere: An Environmental Psychology Approach." *Journal of Retailing*, January/February 1982.

considered as approach or avoidance behaviors"[5] – meaning that an individual customer in a retail environment could potentially be either attracted to or detracted from a certain attribute they resonated with. Later on came the realization that it could be possible to try to measure and observe these kind of *behavioral intentions* in retail store consumers caused by a series of triggers to their emotional states by the bundle of elements in retail store atmospherics and see how those could affect some of their decision making processes within the store, as well as, the time-amount of their stay, to name a few. As a framework for the measurement such changes in the emotional states they chose the renowned Mehrabian-Russell (PAD) model. They purposefully separated the three main elements in the Mehrabian-Russell model – pleasure, arousal and dominance – to try to measure them individually and see if any specific element, alone, stood out as the more "triggered" one.

The conclusions of the approach were eye-opening for the time being as it showed that the approach-avoidance method could be a great starting point in measuring the attitudinal/behavioral intentions caused by one in-store atmospheric or another. In a short summary of findings, Donovan and his partner concluded some very important steps toward a future, some of which are, to name a few – depending on the extent to which the customer found the in-store atmosphere pleasurable they might change their purchase decisions and be prone to buying more or that an increased amount of *arousal* might stimulate in increase in the amount of time spent in-store and show increased willingness to interact with store assistants.[6]

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[5] Donovan, Robert, and J.R. Rossiter. "Store Atmosphere: An Environmental Psychology Approach."

[6] Ibid.

Music as a key element of in-store atmospherics: supermarket experiment on the effects of changing tempi

Another quite prominent research study was conducted by a scientist named Ronald E. Milliman. Milliman having researched most of what his colleagues had achieved before him in the field, decided to pay more attention on background music as a separate element of in-store environment that had not been subjected to in-depth academic research. He also debated that most of the previous findings had only concentrated on the attitudinal layer of consumer behavior whereas most of the time, than not, attitudes do not directly translate into solid behavior.[7] He also argued that the findings themselves and the methods used for research were vague and subject to validity checks as some of the conclusions were mere beliefs, at best. Having *programmed in-store background music* and few of its elements set as the independent variables, he wanted to test them against the dependent variables that were represented by 1) the pace of in-store traffic flow of supermarket shoppers, 2) daily gross sales volumes, 3) the number of shoppers expressing awareness about the presence of background music and see whether or not they would be significantly affected if one or more of the independent variables were to be altered.[8]

Having established what was going to be measured it was also quite important for Milliman to minimize the amount of extraneous variables that could put the validity of his experiments to serious question. To make sure that those variables' effects were kept at the minimum, he made sure that the supermarket did not have any new offerings during the time

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[7] Milliman, Ronald E. "Using Background Music to Affect the Behavior of Supermarket Shoppers."

[8] Ibid.

when experiments were conducted, as well as, no new sales personnel trainings and other variables that could pose any threat to the validity of the research process.

Two general assumptions can be made from Milliman's research on background music's influence on supermarket shoppers in terms of the independent and dependent variables tested. One is that there is significant difference between playing slow- and fast-paced music and its effects on the pace of in-store customer traffic as the results indicate that supermarket shoppers are more likely to stay for a prolonged amount of time in-store as opposed to leaving it quicker than planned when slow-paced music was playing in the background. Another finding claims that the daily gross sales volumes increased under the circumstances when slow-paced music was softly playing in the background as the shoppers did not feel unconsciously pressured, had more time to wander around and made more detailed choices in regards to their purchases.

A monumental feature of this research was the fact that the shoppers were not made aware of the fact that they were under experimental conditions when they were doing their regular shopping and only after when they were leaving, were they notified. Having accidentally made them aware of the experiment's existence could have possibly caused too many biased purchasing decisions for this research to, later on, be considered as valid.

The influences of background music on restaurant patrons: A study on music tempo and the changes in the dependent variables

Milliman, himself, worked on another research piece soon after his first study on background music's influence on supermarket shoppers. This time around the intent was to move

the atmospheric settings into a completely different and much more intimate one – a family-owned restaurant – to experiment with background music on a much deeper scale and be able to control the variable changes with refined precision that a medium-sized restaurant would offer. Varying levels of background music tempo, similar to Milliman's previous research study, were chosen as control variables for this experiment with the intent to monitor the probable changes in the following dependent variables: 1) the amount of time it took restaurant employees to prepare a table, 2) the amount of time it took the customers to finish their meals and leave the restaurant, and 3) the estimated gross margin (gross sales – food and beverage costs) of the restaurant for the experimental period, as well as, a few other variables that are not mentioned here since the effects of independent variables on them were not statistically significant.[9]

Milliman established a *sixteen-day* experimental period to be able to thoroughly and equally assess the differences between the influences of slow- and fast-paced background music on the behavioral patterns of the restaurant patrons. His findings showed that there was significant difference between the amounts of time it took the restaurant employees to prepare the tables for the guests, in line, under slow- and fast-paced background music conditions. Indeed, when slow-paced music was put in the restaurant's background, they unconsciously took more time to get the tables ready, as opposed to when fast-paced music was being played.

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[9] Milliman, Ronald E. "The Influence of Background Music on the Behavior of Restaurant Patrons." *Journal of Consumer Research* 13, no. 2 (1986): 286. doi:10.1086/209068.

Another interesting phenomenon that was registered as a direct consequence to the experiments was the amount of time it took restaurant customers to finish their meals and leave the restaurant as affected by variations of slow- and fast-paced background music. It turned out that, as expected, customers would spend on average considerably more time around the table when slow-paced music was playing in the background, as opposed to fast music playing.

Finally, there was also significant difference between the estimated gross margins, for the experimental period, when altering the paces of the background music played. Customers, on average, would be prone to consuming more when they felt relaxed under slow-paced music, as opposed to fast-paced music. This could be explained by assuming that an average person in a relaxed state of mind would be subject to increased levels of arousal and/or pleasure by the type of background music playing in the restaurant atmosphere, as part of in-store atmospherics.[10]

Background music and its influences on the customers of a large department store as a part of retail atmospherics

Moving on to the final part of the literature review of research materials available on the topic of potential behavioral influences of *in-store* background music, there remain a few noteworthy research studies conducted with the present-day mindset and available resources.

One such contemporary academic research that not only includes all of the resources and knowledge gained from prior experiments but has also merged all of the obtained information

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[10] Donovan, Robert, and J.R. Rossiter. "Store Atmosphere: An Environmental Psychology Approach."

and influencing factors under one roof is the study on "the interactive effect of music tempo and mode on in-store sales" by Klemens M. Knoferle. All around his research work he claims that there has been a colossal amount of study done on estimating the influences of music tempo on perceived customer behavior but also does not fail to notice that music mode, another vital musical element, has majorly been left unnoticed and untested in in-store experiments trying to find out the influences of background music on customers. To provide additional depth to his research he determines to reveal the possible influences of music mode on in-store customers' behavior and couples that with a major change of physical environment in which the experiment was to be conducted – a large department store.[11]

This *new experimental setting* diversified the product choices of intended customers and, yet, the dependent variables to be tested remained the average customer flow in-shop and the differences in sales revenue figures as explained by music variations. As for the independent variables, Knoferle picked out two (each with its own variation): music tempo (fast vs. slow) and music mode (minor vs. major). This study, as expected, more or less yielded the same results as the previous ones by Milliman and claimed that: when fast-paced music, within a certain musical mode, was played in the background, the customer pace accelerated, reducing the average customer flow in store and, therefore, reducing the monetary amount spent.

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[11] Knoferle, Klemens M., Eric R. Spangenberg, Andreas Herrmann, and Jan R. Landwehr. "It Is All in the Mix: The Interactive Effect of Music Tempo and Mode on In-store Sales." *Marketing Letters*23, no. 1 (2011): 325-37. doi:10.1007/s11002-011-9156-z.

Defining Null and Alternative hypotheses for this research study

According to the main findings from Milliman on supermarket shoppers' affected behavior by different treatments to the music tempo and the experiment with manipulating music tempi and mode by Knoferle and his partners, the null and alternative hypotheses, together with the value assignments, for this research study were derived:

- **S:** *Slow-paced music treatment*

- **F***: Fast-paced music treatment*

- **B:** *Represents the base store location in Avan (non-experimental, control group)*

- **Ho:** *Fast-paced background music doesn't have an effect on weekly average sales volumes [$\mu(f) = \mu(b)$]*

- **H1:** *Fast-paced background music has an effect on weekly average sales volumes [$\mu(f) \neq \mu(b)$]*

- **Ho:** *Fast-paced background music doesn't have a negative effect on weekly average sales volumes [$\mu(f) \geq \mu(b)$]*

- **H1:** *Fast-paced background music has a negative effect on weekly average sales volumes [$\mu(f) < \mu(b)$]*

- **Ho:** *Slow-paced background music doesn't have an effect on weekly average sales volumes [$\mu(s) = \mu(b)$]*

- **H1:** *Slow-paced background music has an effect on weekly average sales volumes [$\mu(s) \neq \mu(b)$]*

- **Ho:** *Slow-paced background music doesn't have a negative effect on weekly average sales volumes [$\mu(s) \geq \mu(b)$]*

- **H1:** *Slow-paced background music has a negative effect on weekly average sales volumes [μ(s) < μ(b)]*

- **Ho:** *There is no difference between the effects of fast- and slow-paced background music on weekly average sales volumes [μ(f) = μ(s)]*

- **H1:** *There is a difference between the effects of fast- and slow-paced background music on weekly average sales volumes* [μ(f) ≠ μ(s)]

3. Data sources, descriptive statistics and limitations

Quantitative measurements

A two-week experimental research design was implemented to measure the effects of two treatments of music – fast-paced and slow-paced background music – on the buying behavior of clothing store patrons in Armenia. For the purposes of having increased control over and documented record of all of the variations in the background music tempi and their effects on consumer behavioral habits, a music playing schedule was developed and a cautious selection of background music to be played was made. Taking into account the demographics of the store patronage two separate music playlists were created, one containing only fast-paced contemporary pop music and the other with only slow-paced music. The music genre and the initial playlists, were pre-determined by the store itself as a result of years of experiments to find the ideal musical style fitting their clientele. The research setting was the other variable under serious scrutiny and the final chain store was selected upon two criteria: willingness to participate in the experiment and closest compatibility with the technical aspects of the study.

As implied by the objectives of this research study, in order to increase the validity of research methodology and findings, the participants had to be observed in their natural settings,

as opposed to *laboratory* settings. With that in mind, a medium-sized consumer clothing chain store operated by a large multi-brand company was selected as the research setting. Since the chain store had been in existence for several years, it was able to accumulate a solid customer base and a well-defined market segmentation that they were catering to using various promotional activities, as well as, clothing line extensions. As the company grew, within the chain, they expanded and are currently represented by *five* of their own stores each in a separate metropolitan district of the city of Yerevan. For the purposes of this study, *three* out of *five* store locations were chosen as research settings and separated under the notions of control and experimental groups. The other two locations, respectively being – Dalma Garden Mall and Metronome Shopping Center – were eliminated from selection since the general atmosphere of shopping malls could not be taken for the atmospherics of an individual store inside and thus would make it tough to separate and would limit the validity and integrity of the experimental design.

Having defined which three of the chain store locations were to be subjected to experiments (Komitas, Avan and Hanrapetutian branches), there was also the need to classify the locations into *control* and *experimental* groups. Performing the same experiment in all three locations would not have yielded any feasible results, just the contrary, it would have eliminated the chances of calculating the differences between the experimental and the unaffected states (control group). Solely for that reason, the store management was asked to randomly select one of the branches as the *control group* and withhold from making any changes to the background music being played there. The music played there was to remain the same. As for the other two remaining, they consequently made the experimental group and received the fast- and slow-

paced music treatments on a by-weekly basis, with reverse schedules in-between them, as predefined in the music playing schedule.

For the purposes of not confusing the store customers, unaware of the existence of the experiments, with songs and playlists unfamiliar or unpleasant to them, an agreement was reached with the chain store management to remaster their existing playlists, in order for the differences and changes in the song lists not to affect in-store customer satisfaction and pose possible threats to the validity of the experiment. Separate attention was given to the notion of actual perception of fast- and slow-paced music as experienced by their potential buyer personas. Only after determining that was the final shortlist of songs per playlist developed. Since the majority of their customer base was represented by young, middle-aged and vibrant males and females, a focus group approach with a sample of their potential target customers was agreed to be sufficient to determine whether or not each musical piece, respectively included in the fast or slow playlist, was actually considered as fast or slow. *Three* separate focus groups of *eight* participants, consisting of students from different undergraduate/graduate years of study in the American University of Armenia, were, each, asked to determine a set amount of songs to be either fast or slow and the final playlists were compiled accordingly. The final *two* playlists (147 fast- and 101 slow-paced musical pieces) majorly consisted of the aggregate choices made by the participants of all three focus groups.

Initially, the experimental period available was to span across four weeks (April 2 – April 28), however, due to substantial political unrest in Armenia during April 14 - April 27, limited the experimental period to just two weeks. Having a two-week experimental period available

simplified the decision making regarding the music playing schedule. The specific month for the conduction of the experiments in-store was chosen to be April, 2018 since it was the only calendar month, in the timeframes of this study, independent of major extraneous forces. Between the months of February to May, April was the only month without any major holiday, like: Valentine's Day, March 8, May 1 and May 9. Even though, April 7 was a national holiday in Armenia, it happened to be a Saturday falling into the non-experimental period.

During the period of April 2 – April 14, fast- and slow-paced music was to be played by-weekly, shifting the playlists each week in order to give the store patrons some time to consciously and unconsciously get familiar with the background musical conditions and also be able to get significantly more hours in a continuous manner. This would not have been possible if playlists were to be shifted, for example, by-daily or every two days in a week. It is also very important to note that in no same week was the music playlist in two experimental groups (stores) the same, meaning that if the first chain store received the fast-paced treatment then the second one would be getting the slow-paced treatment for that week, and so on until the second and final week of experiments. The third store, as already mentioned, was left as is, so no hours of experimental research was conducted there. It is also noteworthy that the musical treatments were only present during the weekdays as, according to the store management, the weekends represented the prime shopping periods and conducting the experiments then would have distorted the validity of the overall findings.

All in all, *180* hours of both the playlists was played in the two stores, half of which *(90 hours)* was fast-paced music coupled with the other half being slow-paced.

Qualitative measurements

The experimental design, as practical as it was for quantitative measurements, was equally limiting when trying to measure the possible influences of the two background music treatments (fast- and slow-) on average in-store customer flow. When consulting with the chain store's management, they recalled using special technology to effectively track each customer's entrance and exit times and then induct the average figures of those to see how various atmospheric variables would influence their general mood and consequently the time spent in store.[12] Sadly, due to some technical limitations during the time-frames of this research, the chances of adopting such measurements in form of quantitative data was practically impossible. Therefore, qualitative measurements were set to try to explain the possible linkage between the music treatments in-store and the differences in average customer flow.

One-on-one, in-depth interviews were conducted with the store management in order to assess whether or not they had personally felt any difference between the customer flows (time spent wandering) during slow-paced music treatment as opposed to fast-paced treatment. The interviews were short and unstructured, majorly in the form of general inquiries for the store management to freely express the thoughts they had in mind. Later on, the feedback was gathered and presented in the Results section.

Research limitations

Research limitations were present in form of extraneous variables and did bear a considerable amount of effect on research conduction and data gathering processes. Although,

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[12] Milliman, Ronald E. "Using Background Music to Affect the Behavior of Supermarket Shoppers."

every possible means was taken to minimize and possibly eliminate the effects of all major extraneous variables, the individual effects of some variables proved hard to be offset. An agreement was made with the store management to keep the following variables under control during the experimental period: point-of-display promotions, special sales deals, store consultant training programs, change in one or more aspects of general store atmospherics, no specific event/holiday intervention and change in store personnel/management. Perhaps, one of the most important extraneous variables to be kept under control were the point-of-display promotions and special sales deals. Fortunately, for the experiment, the store almost continually engaged in promotions and sales campaigns making it one of the easiest recognizable in the category. For that reason, it was assumed that the aforementioned variable was kept under control solely due to its category.

One of the two major limitations in the data gathering process happened as the store facilities, during the experimental period, were not technically ready and able to facilitate the calculations of the in-store customer flow. Although, the management claimed to have experimented with special computational devices for the matter, the same could not have been done in the timeframes of this study. For that purpose, data gathering and analyzing processes were limited to qualitative measurements in form of one-on-one interviews with the store management, after the experimental period. These observations would help get first-hand feedback from the personnel who had experienced any abnormalities during different musical treatments.

The other, and probably, the largest extraneous variable to affect the processes of data collection was the political upheaval and unrest in Armenia during the second period of the experiments (April 14 – April 28). Initially, a four-week period (April 2 – April 28) with its respective music playing schedule was assigned for experimentation, however two weeks' of useful data had to be removed before the results were calculated for the final outcome to be valid enough for research purposes. After consulting with the store management, they confirmed and expressed their disturbance on the matter and advised against using the data for the final, two-week period. They also noted that their sales in all locations, expect for the Avan (based) branch, were significantly affected by the incident. Fortunately, both the store locations had already experienced both the treatments and no substantial data for result obtainment was missing. The only concern regarding the data lost was that it could potentially prove to be insufficient enough for the results to be validated.

4. Estimation and hypothesis testing

Assigning Independent/dependent variables

To be able to effectively induce and interpret the aforementioned quantitative and qualitative measurements, as well as, be able to reject or fail to reject the hypotheses derived from the combination of past research and current need satisfaction, appropriate estimations and value assignment needed to be done. The full list of value assignments is presented below.

Independent and Dependent variables were assigned as follows:

- **Independent variable(s):** *music treatment variations depending on tempo (fast- and slow-paced musical playlists)*

- **Dependent variable(s):** *weekly average sales revenues, pace of in-store customer flow*

Data estimations

Following upon the request to the store management to randomly choose between the three chain store locations and assign them respectively as *control* and *experimental* groups, the following picture was formed:

- **Control Group:** *Avan* branch

- **Experimental Groups:** *Komitas and Hanrapetutian* branches

According to the value assignments in the two-week music playing schedule:

- **W1** stood for *week 1*

- **W2** stood for week 2

- **S1** stood for *Store 1 (Komitas branch)*

- **S2** stood for *Store 2 (Hanrapetutian branch)*

- **B** stood for *Base (the unaffected, control group in Avan)*

- **R1** stood for *the historical rate of Store 1*

- **R2** stood for *the historical rate of Store 2*

To find the significance between the two musical treatments and ultimately be able to reject or fail to reject the first *Ho*, the results from the fast- and slow-paced music treatments, taken separately, had to be statistically compared with each other in the quest of establishing the significant relationship in Ho. For this reason, a *t-Test: Paired Two Sample for Means* was conducted using the data gathered from the two-week experiments in both the experimental stores and classified in accordance with the different musical treatments (fast-paced versus slow-paced).

To be more assured in the significance of the results obtained, another two tests (per separate musical treatment) were conducted to effectively measure the significance of the influences of only fast-paced and slow-paced music – in the process of the two-week period for both the experimental stores, as opposed to the same two-week period for the base/unaffected location. Before those estimations, however, historical data of the last five years of *Average Sales Revenue* for the month of April was gathered, per every store location, for the purposes of evening out all of the possible variations between the individual chain stores due to multiple extraneous variables. The aforementioned processes were conducted to ultimately find the rates of variations (R1, R2). *R1* was derived by dividing the historical average for the month of April for Store 1 to the Base's (Avan) average. *R2*, consecutively, was derived utilizing the same logic for Store 2. Later on, for the same purposes of evening out the results between the experimental and control groups, sales figures for the two-week period, per store, were separately divided by their respective rates – R1 for Store 1, R2 for Store 2 to get the actual figures, free of baring any major fluctuations in them. Check annexes for a more visual representation.

Having eliminated all of the possible differences between the individual stores allowed for calculations to inspect the differences in fast-paced and slow-paced treatments, regardless of the store location, as opposed to the two-week period for the Base location. Two separate F tests (*F Test: Two Sample for Variances*) were conducted per treatment to find out whether or not the variances between the affected and unaffected figures were equal or not. As a result of unequal variances, two separate T tests were conducted, two-sample assuming unequal variances.

5. Discussion of the results

Quantitative

After performing all of the necessary calculations, the following results emerged. The first t-Test: Paired Two Sample for Means revealed a p-value of 0.746150856 for the P(T<=t) two-tail. The p-value fell away from the confidence interval (0.74 > 0.05), thus, failing to reject the Null hypothesis - **Ho:** *There is no difference between the effects of fast- and slow-paced background music on weekly average sales volumes* [μ(f) = μ(s)] – stating that there is not enough evidence to conclude that there is a difference between the effects of fast- and slow-music treatments on weekly average sales volumes. A peculiar observation, for future research studies to concentrate on, is the fact that there was found to be an insignificant amount of difference in the average sales figures caused by the two treatments (negative value of t Stat), paving way to look into this relationship by accumulating a larger data pool for the potential of more significant findings.

The second hypothesis to be tested was whether or not fast-paced music had any effects on average sales volumes. Coming from the results, it was possible to reject the Null hypothesis - **Ho:** *Fast-paced background music doesn't have an effect* on *weekly average sales volumes* [μ(f) = μ(b)] – take the alternative one and conclude that fast-paced music does, indeed, have a significant effect on weekly average sales volumes at 10% significance level (P(T<=t) two-tail = 0.077 < 0.1).

In addition to this one, the other hypothesis, stating that fast-paced music doesn't have a negative effect on sales figures, was also rejected, (P(T<=t) one-tail = 0.03 < 0.05) at 5%

significance level and the Alternative hypothesis was taken - **H1:** *Fast-paced background music has a negative effect on weekly average sales volumes.* These findings, essentially, correspond to one part of the results from Milliman's study on supermarkets[13] more specifically regarding the negative effects of fast-paced music treatment on average sales volumes.

In regards to the effects of slow-paced music treatment, following the same model as with the separate experiment with fast-paced treatment, the results showed that, at both: 5% and 10% significance levels, there was not enough evidence to conclude that slow-paced music had any viable effect on weekly average sales volumes ($P(T<=t)$ two-tail $= 0.13 > 0.1 > 0.05$), thus failing to reject the **Ho:** *Slow-paced background music doesn't have a negative effect on weekly average sales volumes.* This meant that the effects of slow-paced music were too weak to be captured with this data set.

Moving on to the next hypothesis, when testing at 5% significance level ($P(T<=t)$ one-tail $= 0.06 > 0.05$), it was impossible (failed) to reject the **Ho** hypothesis. However, the picture was much different when tested for 10% significance level ($P(T<=t)$ one-tail $= 0.06 < 0.1$), where it was possible to reject the **Ho:** *Slow-paced background music doesn't have a negative effect on weekly average sales volumes*. The fact that the results were quite different, depending on the significance level they were tested at, gives enough ground to conclude that it was hard enough to catch the negative effects of slow-paced music. Moreover, the results gained from this particular part of the experiment did not align with the general statements in literature work, where there was strong evidence of positive effects of slow-paced music on store sales volumes.

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[13] Milliman, Ronald E. "Using Background Music to Affect the Behavior of Supermarket Shoppers."

With this in mind, it is only left to future research works to prove the viability of this phenomenon by bringing significant levels of evidence.

Qualitative

In regards to the qualitative studies conducted to try to tap into the influences of fast- and slow-paced background music on the pace of in-store customer flow, final results were obtained from the in-depth interviews. The aim was to discover whether or not two weeks of experiments in store were enough for the store management, as well as, the clientele to genuinely feel the influences in the "shifts" of musical tempi and for that to influence the length of their stay in store. Since, for reasons aforementioned, no statistical and quantitative data was collected, qualitative data was the only way to get an understanding of the possible impacts and unfortunately the store management denied to have felt any differences in the customer flow. On the contrary, they mentioned that some of their frequent visitors were kindly asking them to put more cheerful songs for them to be less affected and reminded of what was happening in Armenia by that time.

To kindly remind the intended reader of this paper – the aforementioned occurrence was referring to the mass political unrest in Armenia that resulted in a peaceful revolution. Bearing these circumstances in mind, the results obtained from the interviews cannot be called final since they were partly distorted by the political unrest and there was no quantitative data to the results off of. Hence, this topic remains widely open to more technologically-heavy investigation for the obtainment of structured data results across much longer experimental time periods.

6. Conclusion

Although, initially music was solely treated as an entertainment medium, it quickly rose to the status of an untapped and-high potential retailer tool for increased control over customer behavioral intentions. The scope of this research study, mainly, included the explorations of influences of in-store music on average sales volumes and customer flow and, to great expectation, one such effect was proven to be influencing store customer behavior significantly enough - *fast-paced music has a negative and significant effect on weekly average sales volumes.* This would mean that fast-paced music would not only significantly affect sales volumes but also have a negative effect, meaning a decline in sales would most likely happen in comparison to the steady state sales volumes of the same store.

On the other hand, contrary to most of the cited literature studies, there was no significant evidence that slow-paced music had an effect on average sales volumes. Much unexpectedly, there was even a negative connection between the variables, just as it was with the fast treatment. For reasons aforementioned above, this phenomenon must be looked into with more depth before any conclusions can be made on the significance of the relationship.

As per the customer flow in-store, more time and personal observations need to be conducted to be able to quantitatively and qualitatively measure the effects and see whether or not there is any direct, undeniable influence coming from various musical treatments. In the time-frames of this study, it was not possible to obtain any viable information to claim a strong existence of any relationship.

Having significant evidence, both: internationally and locally, that the systematic treatment of fast-paced music negatively affects average sales volumes and inferences from previous studies on the topic, give enough ground to assume the likelihood of the existence of an inverse relationship involving slow-paced music experimenting. Since some of the findings regarding the effects of slow-paced music were doomed to be not significant, a prolonged data collection period (at least two months) and a larger data pool will be needed for more accurate studies. The outcomes of such research could potentially carry vital significance to retailers, since it would open the door to diversifying music tempi in the course of a single day, depending on the objectives of the store i.e. the trade-off between high/low sales volumes and fast/slow pace of customer flow in-store.

There is hope that this research study, along with its findings, leads to a chain reaction of subsequent studies in the field and thorough observations in the steps of uncovering the full spectrum of the influences of various musical elements, including music tempi, on consumer attitudes and behavior in physical environments in Armenia.

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8. Annexes

Music playing schedule

2018	April			Store 1 (Komitas)		
MONDAY	**TUESDAY**	**WEDNESDAY**	**THURSDAY**	**FRIDAY**	**SATURDAY**	**SUNDAY**
26	27	28	29	30	31	01
02	03	04	05	06	07	08
W1 Fast	Fast	Fast	Fast	Fast		
09	10	11	12	13	14	15
W2 Slow	Slow	Slow	Slow	Slow		
16	17	18	19	20	21	22
N/A	N/A	N/A	N/A	N/A		
23	24	25	26	27	28	29
N/A	N/A	N/A	N/A	N/A		

2018	April			Store 2 (Hanrapetutian)		
MONDAY	**TUESDAY**	**WEDNESDAY**	**THURSDAY**	**FRIDAY**	**SATURDAY**	**SUNDAY**
26	27	28	29	30	31	01
02	03	04	05	06	07	08
W1 Slow	Slow	Slow	Slow	Slow		
09	10	11	12	13	14	15
W2 Fast	Fast	Fast	Fast	Fast		
16	17	18	19	20	21	22
N/A	N/A	N/A	N/A	N/A		
23	24	25	26	27	28	29
N/A	N/A	N/A	N/A	N/A		

2018	April				Base (Avan)	
MONDAY	**TUESDAY**	**WEDNESDAY**	**THURSDAY**	**FRIDAY**	**SATURDAY**	**SUNDAY**
26	27	28	29	30	31	01
02	03	04	05	06	07	08
N/A	N/A	N/A	N/A	N/A		
09	10	11	12	13	14	15
N/A	N/A	N/A	N/A	N/A		
16	17	18	19	20	21	22
N/A	N/A	N/A	N/A	N/A		
23	24	25	26	27	28	29
N/A	N/A	N/A	N/A	N/A		

t-test: paired two sample for means

t-test: paired two sample for means		
To find the significane between the two treatments we compare them to each other		
Fast	**-**	**Slow**
W1S1		W2S1
W2S2	<=>	W1S2
W1S1 is the data for week 1 in store 1		**W2S1** is the data for week 2 in store 1
W2S2 is the data for week 2 in store 2		**W1S2** is the data for week 1 in store 2

Deriving R1 and R2

Years	Average figures for Store 1 (S1) and Base (non-experimental store) for the last 5 years' month of April, add them up and divide by the number of figures to get R1	
	Store 1	**Base**
2013	X1	Z1
2014	X2	Z2
2015	X3	Z3
2016	X4	Z4
2017	X5	Z5
	Average X	Average Z
R1	Average X / Average Z	

	Average figures for Store 2 (S2) and Base (non-experimental store) for the last 5 years' month of April, add them up and divide by the number of figures to get R2	
	Store 2	**Base (Avan)**
	Y1	Z1
	Y2	Z2
	Y3	Z3
	Y4	Z4
	Y5	Z5
	Average Y	Average Z
R2	=	Average Y / Average Z

t-tests: two sample assuming unequal variances

Fast		
Divide the figures for each week by R1	W1S1 / **R1** (all 5 days' of data	W1B (all 5 days' of data)
Divide the figures for each week by R2	W2S2 / **R2** (all 5 days' of data)	W2B (all 5 days' of data)

Slow		
	W2S1 / **R1** (all 5 days' of data	W1B (all 5 days' of data)
Divide the figures for each week by **R1**		
	W1S2 / **R2** (all 5 days' of data)	W2B (all 5 days' of data)
Divide the figures for each week by **R2**		

Calculation results

t-Test: Two-Sample Assuming Unequal Variances		
	Variable 1 (Fast)	**Variable 2(Base)**
t Stat	-1.879204333	
P(T<=t) one-tail	0.038735875	
t Critical one-tail	1.739606726	
P(T<=t) two-tail	0.077471749	
t Critical two-tail	2.109815578	

t-Test: Two-Sample Assuming Unequal Variances		
	Variable 1(Slow)	**Variable 2(Base)**
t Stat	-1.564615546	
P(T<=t) one-tail	0.06804828	
t Critical one-tail	1.739606726	
P(T<=t) two-tail	0.13609656	
t Critical two-tail	2.109815578	

t-Test: Paired Two Sample for Means		
	Variable 1 (Fast)	**Variable 2(Slow)**
t Stat	-0.333835026	
P(T<=t) one-tail	0.373075428	
t Critical one-tail	1.833112933	
P(T<=t) two-tail	0.746150856	
t Critical two-tail	2.262157163	

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