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**THE EFFECTS OF MUSIC ON THE DURATION OF TIME
SPENT IN A STORE BY A CUSTOMER**

by

Danita J. Mussatto

**A Thesis
Submitted to the
Faculty of The Graduate College
in partial fulfillment of the
requirements for the
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Department of Psychology**

**Western Michigan University
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THE EFFECTS OF MUSIC ON THE DURATION OF TIME
SPENT IN A STORE BY A CUSTOMER

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Western Michigan University, 1981

The present study compared the effects of employing music and withholding music in a retail setting. Over a three week experimental period, the duration of time customers spent in a store was recorded. The music system was first employed (Phase I), next the customers were subject to an environment void of music (Phase II), and then the music system was reimplemented (Phase III). During Phase II customers spent significantly less time in the store than in Phase I or Phase III. Another store, employing music continually, was used to control extraneous sources of variability. The results provide empirical verification of subjective reports gathered by other researchers.

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I would like to express my appreciation to the Plum Treat for allowing this research to be conducted in one of their stores. I would also like to express my thanks to Michelle Mussatto and Sue Johnson for the long hours they assisted me with data collection. In writing this thesis, I have benefitted from the helpful advice and constructive criticism provided by professors Dale M. Brethower and Bradley E. Huitema. Most importantly, I would like to express my sincere gratitude to Dr. Norman M. Peterson for his invaluable suggestions and supervision of this research.

Danita J. Mussato

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INTRODUCTION

Research on music in industry deals with easily quantifiable and measurable worker behaviors, such as attendance and productivity (e.g., "Music to Work By", 1964; Muzak study on the effects of Muzak on employee performance, Note 1). However, some researchers have examined behaviors that are not as easily measured, such as employee attitude and morale (e.g., "Office Workers", 1972; Winsor, 1980).

Researchers have frequently used music in an industrial setting to improve efficiency and productivity (e.g., "Background Music", 1974; "Music is Shown", 1962; Podolsky, 1965; Ross, 1966; Muzak study on the effects of Muzak on employee performance, Note 1). Cowley (1960) and Wokoun (Note 2) obtained similar positive results by using music in industrial and office settings to decrease employee fatigue.

Others have combined a number of potentially powerful independent variables into a "treatment package" to increase employee relationships (e.g., Grayston, 1974; "Power to Soothe", 1975). The Dartnell Corporation used a treatment package that employed feedback, goal setting, and piped-in music as a means of decreasing unnecessary conversation between employees ("Music to do Office Work By", Note 3).

According to "Music to Work By" (1964), "Piped-In Music" (1971), and Winsor (1980), a music system employed in an industrial setting decreases turnover, absenteeism, and lateness. Background Music: Does It Pay (1978), Boisi and Wokoun (Note 4); and "Music Ends Gripes" (1970) employed a piped-in music system to successfully mask irritating noises in factory areas.

Anastasi (1964) noted that music was not useful in increasing employee performance for long-term employees. The author did note, however, that music reduced the monotony of the job for short-term employees (pp. 215-216).

Although research is extensive in using music to alter employee behavior, very few studies have been conducted using music to alter customer behavior. Keenan and Boisi (note 5) installed a piped-in music system to lengthen the stay of the supermarket customer. The same positive results were also found in studies using department store and drug store customers (Johnson, 1976; Keenan & Boisi, Note 6; Keenan & Boisi, Note 7). Customers in these studies were surveyed and reported that music masked irritating noise, reduced customer restlessness, created an illusion of a luxurious store, reduced irritation at checkout, and stimulated impulse buying.

Lindsey (1977) reports that a music system should meet two functional requirements: to accommodate and lengthen, if possible, the stay of the customer in the establishment's shopping areas in order to affect the size of the customer's purchase; and to assist both the fact and the illusion of a speedy checkout of the customer.

Johnson (1976) found a correlation between functional music and the creation of a relaxing atmosphere. The study stated that music relieves on-the-job tensions, the staff is more courteous and alert, thus enabling them to be more receptive to customers' problems and demands.

The present study focuses on an area which can be identified and measured--the duration of time spent in a store by a customer. Previous researchers surveyed customers and reported results in unpub-

lished manuscripts. This experiment was designed to provide empirical data to either support or reject the claims based upon these unpublished studies.

METHOD

Setting

The study was conducted in two small stores at a mall in Kalamazoo, Michigan. Each store was a part of separate chains of retail outlets. Both stores sold cards and gifts and employed a "mellow music" FM radio station, WQLR. Both stores were fully carpeted, thus minimizing noise levels and the music systems were both played at low levels. Each store employed a person who stood behind the counter and rang up sales. They were not salespersons and, therefore, did not have a great deal of contact with the customers.

Subjects

The subjects consisted of customers entering the stores during a day and an evening period. The subjects were not told of their participation in the study and the data collectors were not visible to the subjects, thus preventing unintentional expectancy effects.

Design

An ABA design was used with each condition lasting one business week, Monday through Friday. During each week of the study, the amount of time each customer spent in a store was recorded. Entering and leaving a store consisted of a customer crossing the threshold of the store. The observers were placed next to each other on a lobby bench outside of the stores. Each observer could see each store from

each seat and, therefore, reliability checks were easily taken. The observers were able to see each other's data sheets in order for customer description to be accurate when taking reliability checks. Customer description was left open for each data collection; each observer was able to describe each subject as he/she found to be the most beneficial for data collection purposes. Reliability was taken on a random 10 minute time interval during each day of the study. Reliability was 100% to the nearest minute and was computed using the formula agreements divided by agreements plus disagreements. The number of customers entering the experimental store averaged 38 an hour across all observational periods, and the number of customers entering the control store averaged 25 an hour across all observational periods.

Procedure

Phase I

During the initial phase of the study, in which a music system was employed in both the experimental store and the control store, the observers were present in the target area during one hour intervals in the afternoon, 2:00 p.m. to 3:00 p.m., and in the evening, 7:00 p.m. to 8:00 p.m. Data were taken for five consecutive days and Phase I was discontinued at the end of the five days due to the stability of data. Data on each store were taken during the same time intervals by independent observers. The observers recorded data on the amount of time spent in a store by each customer.

Phase II

Following the initial phase, the observers collected data for five consecutive days as in Phase I. The subjects entering the experimental store were exposed to an atmosphere void of piped-in music. The music system was only turned off in the experimental store during the hours of data collection. The control store continued to use the music system.

Phase III .

During Phase III, the experimental store's music system was reimplemented for five consecutive business days with observers taking data in the target area. The control store continued the implementation of the music system.

RESULTS

Figure 1 shows the results across all conditions. Graph 1 depicts the average time spent in the experimental store by the subjects. These data are shown for Phase I, Phase II, and Phase III. The graphs indicate a change in the average time spent in the store by the subjects. Average time decreased 1.8 minutes when the music system was removed, and average time increased 1.5 minutes when the music system was reimplemented. Graphs 2 and 3 depict similar information as they show a decrease for both day and night observational periods.

Graph 4 shows the average time spent in the control store by the subjects. This graph illustrates little change in the duration of time spent in a store by a customer. There is a slight increase of .6 minutes during the second week of the study. This is in contrast to the results in the experimental store during the same time intervals. Graphs 5 and 6 present similar data as the graphs show a day and night breakdown of data.

Both the experimental and control stores show more time was spent in stores during the night time interval and a trend by subjects to spend more time on Fridays with a lull during the mid-week days.

A one-factor analysis of variance was computed to compare the means for the experimental and control stores. The statistical analysis concluded that the null hypothesis for the experimental store: $u_1=u_2=u_3$ was false at the .05 level. The statistical analysis did show, however, that the null hypothesis for the control store: $u_1=u_2=u_3$ was true at the .05 level. The analysis of variance for the

experimental store showed an F-value of 11.625 when compared to the central F-distribution of 3.89. The analysis for the control store showed an F-value of 0.783 when compared to the central F-distribution of 3.89.

Figure 1. Duration of time spent in a store by a customer across all conditions.

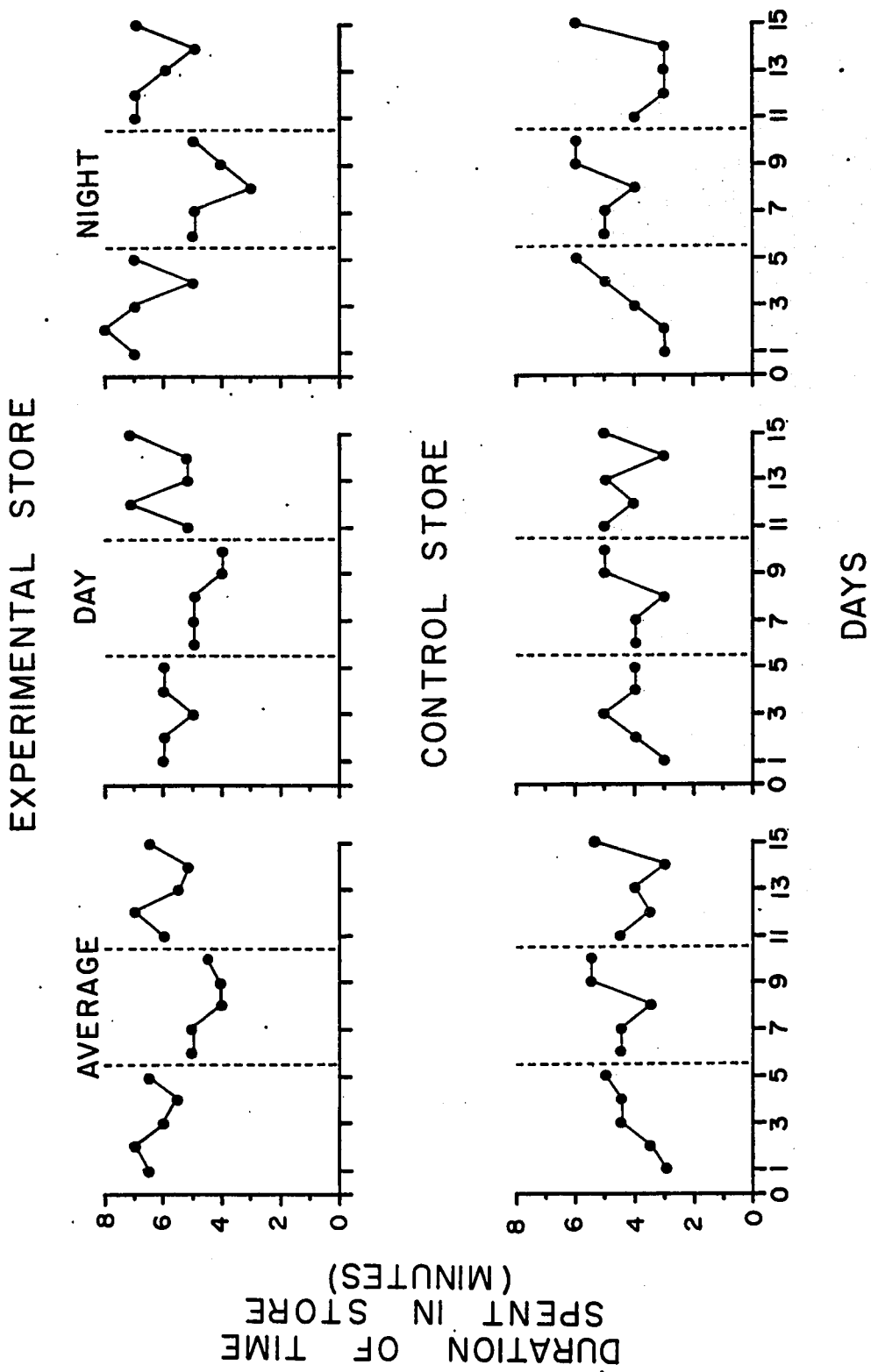


Figure 1

DISCUSSION

The results of this experiment with customer behavior demonstrate that a music system apparently does influence the amount of time spent in a store by a customer. The function of the music system is similar to that reported on the effects of Muzak on supermarket customers (Keenan & Boisi, Note 5) and by similar experiments on department store and drug store customers (Keenan & Boisi, Note 6; Keenan & Boisi, Note 7).

The efficiency of the music system in lengthening the stay of the customer in the store is supported in three ways by the data. First, the customer stayed 1.5-1.8 minutes longer when music was employed than when it was withheld. Second, the control store showed an increase of 0.6 minutes during the second week of the study. The effect, therefore, was not seen in the control store, thus strengthening the argument for the use of music in a retail setting. The same results were found when data were broken down into day and night intervals. Third, the statistical analysis concluded that the value of the F-ratio obtained for the experimental store would occur by chance less than 5 times in 100; therefore, rejecting the null hypothesis as a true statement about the means of the population. The analysis did show that the means were equal for the control store, thus eliminating these results as a purely chance occurrence.

The hypothesis that quiet was aversive to customers in a retail setting may account for these results. The employees did not have a great deal of contact with the customers and the music was turned off

in the experimental store during the hours of data collection. This eliminated the possible alternative that poor employee behavior influenced the customer stay in the store. The investigation was conducted from July 27, 1981, until August 14, 1981, and, therefore, the data were not taken during a period that encompassed any holidays. If it had, the data may have been altered due to more cards and gifts being bought.

The results of the present experiment indicate systematic change in the amount of time a customer spends in a store when music is implemented and when it is withheld. The design could have been stronger if a measure of customer purchase and/or a measure of employee courtesy was provided. Discussion with the manager of the experimental store offered several informal observations of the project. First, the manager did not expect any change in customer behavior with the removal of the music system. Second, he did not find any abnormal fluctuations in amount purchased from week to week. He stated that there were some fluctuations in amount of purchase, but that it did not appear to coincide with the implementation of the phases. He would not provide actual sales data. The argument against the use of music in a retail setting would have been stronger if actual figures depicting the fluctuations in sales could have been obtained. Music may only lengthen the stay of the customer without stimulating impulse buying. If this is true, employing a music system may not be as beneficial to the proprietor.

This investigation took place in a mall setting. There are several points which should be noted about such a setting. Data were taken on the experimental and control stores simultaneously

and extraneous sources of variability may have been reduced as a result of similarity between stores. The investigator did note, however, that music was also played in the mall's lobby. If the target area was quiet, music from the mall lobby could be heard within the store. This may have altered data that were taken during the music removal phase. Perhaps there would have been a greater difference between phases if music was not played in the lobby.

The present study may help store owners choose a music system which may be beneficial to their business, or at least proprietors may give some thought to their music system which they may not have done before. This study will bring to light the area of piped-in music and may provide further advancement in the research of music systems. There are limitless variations to the use of music in retail settings. A consideration may be to vary the type of music as an alternative or addition to music versus no music. Another alternative would be to use a large store using music in one area and withholding music in the other areas, and then moving the music from area to area. Particular salespersons' behaviors as a possible independent variable may also be researched, such as employee greeting behavior or employee courtesy. In conclusion, more avenues must be explored toward the control of customer behavior through music.

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