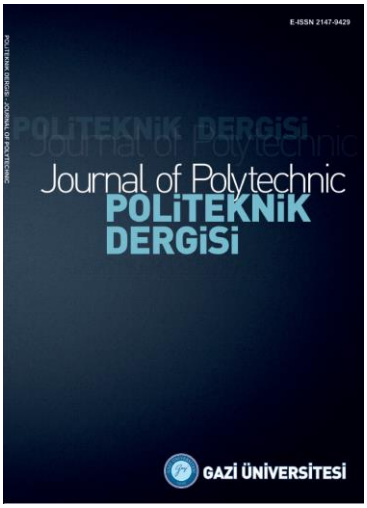

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A model proposal for movie theater service performance ındex (MTSPI) calculation with structural equation modeling and application

Yapısal eşitlik modellemesi ile sinema hizmet performans endeksi (MTSPI) hesaplaması için bir model önerisi ve uygulaması

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A Model Proposal for Movie Theater Service Performance Index (MTSPI) Calculation with Structural Equation Modeling and Application

Highlights

- *Entertainment performance index calculation*
- *Ambiance dimension enhancement for movie theaters*
- *Establishing a structural equation model to create an index*
- *Comparison of index score according to frequency of use of revenue management*

Graphical Abstract

In order to create an entertainment performance index, structural equation model was developed. Index scores were compared according to the frequency of using income management applications.

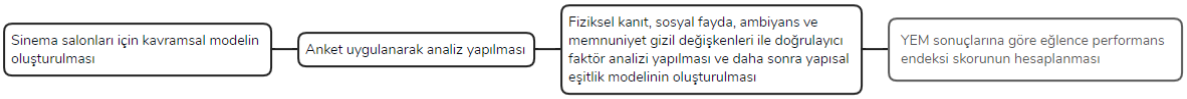

Figure. Entertainment Performance Index Score Calculation Stages

Aim

The target of this research is to calculate an entertainment performance index for the cinema industry and to test the accuracy, suitability and validity of the model established with structural equation model for movie theaters by improving the ambience dimension.

Design & Methodology

A questionnaire was applied to the cinema audience and the suitability of the model was determined by structural equation modeling and the entertainment performance index was calculated with this model.

Originality

Calculating the index by developing a model for the entertainment performance index and creating the ambience dimension as a dimension for movie theaters.

Findings

Entertainment performance index scores were calculated as good with 76 for physical evidence, good with 77 for social benefit, very good with 81 for ambiance, and good with 78 for overall satisfaction. The index score of people who always benefit from revenue management applications was higher than those who never benefited from them.

Conclusion

An index has been created for the entertainment industry. It has been revealed that perceived service quality affects satisfaction and satisfaction affects the ambiance dimension which is developed for movie theaters. In addition, it was concluded that the frequency of using revenue management applications affects the index score.

Declaration of Ethical Standards

The author(s) of this article declare that the materials and methods used in this study do not require ethical committee permission and/or legal-special permission.

A Model Proposal for Movie Theater Service Performance Index (MTSPI) Calculation with Structural Equation Modeling and Application

Araştırma Makalesi / Research Article

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ABSTRACT

In this research, the objective is to create a performance index for movie theater services. In order to create the index, firstly the conceptual model for movie theater services was created. Secondly, physical evidence, social benefit, customer satisfaction and ambiance are determined as latent variables and verified with Confirmatory Factor Analysis (CFA). The relationships among latent variables are determined using the Structural Equation Model (SEM). Then Entertainment Performance Index is developed and calculated by using weights and scores of latent variables for movie theater services. Entertainment Performance Index is used for determining the level of performance and for proposing suggestions for decreasing the level of service quality gaps in movie theater services sector. In addition, satisfaction levels for different customer groups are compared according to the frequency of benefiting from revenue management applications. The ambiance dimension, which is about feeling yourself in the script and feeling the emotions more intensely in the movie theater atmosphere, was developed in this study.

Keywords: Entertainment performance index, structural equation model, revenue management.

Yapısal Eşitlik Modellemesi ile Sinema Hizmet Performans Endeksi (MTSPI) Hesaplaması İçin Bir Model Önerisi ve Uygulaması

ÖZ

Bu araştırmada sinema salonu hizmetleri için bir performans endeksi oluşturulması amaçlanmıştır. Endeksi oluşturmak için öncelikle sinema salonu hizmetleri için bir kavramsal model oluşturulmuştur. İkinci olarak, fiziksel kanıt, sosyal fayda, müşteri memnuniyeti ve ambiyans gizil değişkenler olarak belirlenmiş ve Doğrulayıcı Faktör Analizi (DFA) ile doğrulanmıştır. Gizli değişkenler arasındaki ilişkiler, Yapısal Eşitlik Modeli (YEM) kullanılarak belirlenmiştir. Daha sonra sinema hizmetleri için gizil değişkenlerin ağırlıkları ve puanları kullanılarak Eğlence Performans Endeksi geliştirilmiş ve hesaplanmıştır. Eğlence Performans Endeksi, sinema hizmetleri sektöründe performans düzeyinin belirlenmesi ve hizmet kalitesi açıklarının azaltılmasına yönelik önerilerde bulunmak amacıyla kullanılmaktadır. Ayrıca, gelir yönetimi uygulamalarından yararlanma sıklığına göre farklı müşteri grupları için memnuniyet düzeyleri karşılaştırılmıştır. Senaryoda kendinizi hissetmek ve sinema atmosferinde duyguları daha yoğun hissetmekle ilgili ambiyans boyutu bu çalışmada geliştirilmiştir.

Anahtar Kelimeler: Eğlence performans endeksi, yapısal eşitlik modeli, gelir yönetimi.

1. GİRİŞ (INTRODUCTION)

Businesses are struggling to seize their sustainable competitive advantage and to be a leader in their own markets. In this struggle, in parallel with all technological developments, progress is made in the developments in the management system. Technological developments accelerate the development of the management system by creating an infrastructure for the developments. There are many performance measure methods used in production management, and one of the most important of them is financial and social indexes. Many indexes such as fear, trust, consumption and satisfaction index are created in areas such as economy, industry social life etc. On the one hand, indexes express the numerical equivalents of performances in different time periods; on the other hand, they are an important performance measurement model that reveals the strengths and weaknesses of the enterprise.

With the recent importance of quality in the service sector, businesses are making great efforts to improve their service quality. Businesses are aware that they can survive as long as they provide quality service [1]. In order to measure service quality, several methods are developed in the literature [2]. Service quality and customer satisfaction indexes are mostly preferred by service institutions. These indexes also reveal the performance of a service company. Indexes that can be

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measured are an important parameter that shows the positive effects on the performance of the businesses, otherwise shows the negative effects [3]. When the models in the literature for the development of an index are examined, it is seen that there are basically three different approaches. The first and most preferred one is Structural Equation Modeling (SEM). The second is the estimation of the global and partial index by linear programming. The third is artificial intelligence methods. Fuzzy inference system approach and Artificial Neural Networks (ANN) are used for developing indexes [4].

The purpose of this research is to create an entertainment performance index for movie theaters which is created within the scope of this article. Entertainment performance index is calculated by using scores and weights of latent variables of the Structural Equation Model. The latent variables are dimensions in the model which are physical evidence, social benefit, customer satisfaction and ambiance.

One of the significant points in this study is considered as determining latent variables (dimensions) that are identified to movie theater services. As an example, ambiance dimension is directly related to movie theater entertainment services and it is a dependent latent variable in the model. Secondly, index values for service performance can be used for continuous improvement studies.

Methods used in the study are Confirmatory Factor Analysis (CFA) and Structural Equation Modeling (SEM). CFA is used for developing measurement model and SEM method is used for developing the structural model. With SEM the relationship among latent variables are discovered. Then entertainment performance index is calculated with SEM outputs. As an additional study, satisfaction of customers was compared according to the frequency of use of revenue management applications.

The structural equation model can be used for many problems in many fields. Here, we have presented articles used SEM from several industries. Tan and Chou (2008) [5], conducted a study in entertainment sector. They investigated the impact of the quality of mobile service and its harmoniousness to mobile technology on customers' perceived playfulness for these services. In the study of Šubrt (2022) [6], the relationship between increased work stress and decreased leisure activities with the political participation of US voters was examined. The mediator effect of participant activity was considered in the study. Martínez et al. (2022) [7] has investigated if emotional intelligence has a positive relationship with academic performance and a negative relationship with bullying. In the study of Gök (2017) [8] in order to calculate the performance of universities by measuring the service quality and effectiveness of distance education in higher education institutions, two additive and multiplicative models have been proposed. It was observed that the additive performance score was higher than the multiplicative score. Daniali et al. (2022) [9] investigated the relationship between students' intention about 4.5G mobile phones and cost, performance expectancy, social impact and effort expectancy. Ibrahim et al. (2021) [10] tried to identify the factors affecting customer satisfaction. Structural equation modelling is used and as a result of research it is found that perceived value and perceived quality have an effect on satisfaction. In another study about transit industry with light rail, Ibrahim et al. (2022) [11] examined if service quality affects the satisfaction. Artificial neural network method is used and it is showed that there are three factors affecting satisfaction, which are amenities, providing info and signage. In the study on video game streaming activity, Kuo and Hsu (2022) [12] investigated that system quality, information quality, service quality and user motivation have positively and significantly affected user satisfaction. The modulating effect of emotional engagement between user satisfaction and perceived net benefits was confirmed. He and Luo (2020) [13] has examined the relationship between tourism motivation, satisfaction and revisit intention for ski tourism by using structural equation modelling. In another study using the structural equation modeling method, Badman et al. (2022) [14] examined the relationship between COVID-19 Prevention Measures Compliance and a high level of reliance on national and local public health agencies. Ogbuji et al. (2016) [15] explored the relationship between spatial layout and customer patronage. According to the results spatial outlet has a serious relationship with customer patronage of cinema firms in Port Harcourt. It is revealed that spatial layout is an important marketing factor for cinema services.

In the literature there are many studies in different disciplines and methodologies on the service quality, customer satisfaction and revenue management. Here, we have presented the studies in entertainment sectors, especially in movie theaters.

Koçak and Karakurt (2019) [16] tried to optimize the request to send threshold, fragmentation threshold and buffer size parameters, which directly affect the service quality in wireless local area networks, using artificial neural networks. With this method, they have obtained the ideal values of the data traffic received and sent.

Lumentut et al. (2016) [17] conducted the importance performance analysis to examine the service quality of movie theaters, which are a part of the entertainment industry. In the study conducted at the Movie Theaters in Manado, the business should maintain their good service and improve their low performance. Thus, the satisfaction of the customers will increase and they will become loyal customers of the movie theater.

Achhnani and Garg (2014) [18], aimed to measure the service quality of multiplexes that offer entertainment with dining halls and playgrounds as well as movie watching service. In order to make a descriptive and comparative analysis for Cosmoplex and big cinemas, the SERVQUAL gap model developed by Parasuraman et. al (1988) [19] was used to evaluate five basic dimensions

of service quality. The expectation, perception and gap scores of both multiplex customers were compared. According to the results, both Cosmoplex and Big Cinemas found that the quality expectations of their customers were not met, but Big Cinemas was found to be more successful than Cosmoplex. Ashwini and Shrivastava (2014) [20], developed a model with service quality, customer satisfaction and repeat patronage effect dimensions for restaurants and movie theaters, which are two entertainment services, were examined. The importance of ambience, layout, signage, and employees, which are the 4 dimensions of the service sector, has been investigated. In addition, the effect on customer satisfaction was measured and then the effect of the customer on repeat patronage was studied. Lee et al. (2020) [21] examined, the relationship between service quality, customer satisfaction and customer loyalty of multiplex movie theaters using structural equation modeling. Secondly, SERVQUAL [19], SERVPERF [22] and non-difference score measures were compared to find out which one is better for service quality. According to the results, non-difference score measures in Korean and Chinese multiplex cinema created a better model than SERVQUAL and SERVPERF. Another result is that while customer loyalty is affected by customer satisfaction, customer satisfaction is affected by service quality factors while these factors are tangible assets and security for Korea, tangible assets and empathy for China. In some studies in the literature, the relationship between these customer perceptions and revenue management has been examined. In the study of Uslu (2018) [23], the effects of the reactions and perceptions of customers towards revenue management practices are analyzed on customer loyalty, service quality expectation, perceived price value, satisfaction and trust variables. Unurlu (2010) [24] tried to measure the perceptions of five-star hotels operating in Istanbul about revenue management. As a result of the analysis, it has been determined that there is a significant difference in the attitudes of the managers regarding revenue management, especially in the competitive advantage sub-dimension. Gür (2014) [25], examined revenue management practices within the scope of 5 basic dimensions in order to measure the level of use of revenue management practices of hotel businesses. It has been revealed that hotel businesses are satisfied with the performance of revenue management practices. Choi et al. (2015) [26], evaluated the impact of 5 potential revenue management practices and 2 framework effects on the client's perception of fairness. The five revenue management applications are time-based pricing, reservation time-based pricing, popularity-based pricing, and location-based pricing. The discount framework resulted in a higher perception of fairness than the new price setting.

Being able to predict demand and customer arrival frequency is essential in revenue management applications to control pricing and seat inventory. Because in revenue management applications, profit is optimized with discounted prices during low demand periods or high sales prices during peak demand periods.

Dewenter and Westermann (2005) [27] investigated whether there is a relationship between the number of seats, average real prices and per capita film demand in the German cinema market using estimation techniques such as Ordinary Least Squares (OLS), Two-Stage Least Squares (2SLS), Seemingly Unrelated Regression (SUR). In addition, they estimated the elasticity of demand according to the relationship between demand, prices and real income.

Kim and Park (2010) [28], examined the reasons for the demand for cinema services in their studies and investigated whether it was caused by addiction or habit. According to the results obtained, addictive behavior characterizes the demand for cinema services, this addictive behavior is rational and habit is one of the most important determinants of cinema demand.

The loss of customers can be minimized by organizing various promotions and campaigns by estimating the decrease in customer satisfaction and loss of customers. Dur et al (2022) [29], conducted a customer loss analysis by using artificial neural networks, support vector machines and logistic regression. Aydın (2022) [30], conducted estimation studies on customer loss with machine learning methods to ensure the continuity of the service provided to the customer.

In the study of Chen et al. (2021) [31], which suggests that customers' arrivals are based on a poison process, an attribute service performance index was proposed and helped to evaluate the business performance of stores.

In this study we created the entertainment performance index to evaluate the performance. Structural equation modelling is used and an ambiance dimension is developed in this concept. Then according to the results of the model, entertainment performance index scores are calculated. In addition, comparison of index scores according to frequency of use of revenue management is made.

The paper is organized as follows: The second section describes the model and methods used in the study. In third section, results are discussed. Discussions are presented in the fourth section and in the last section conclusion is presented.

2. MATERIAL and METHOD

2.1. Research Methodology of Entertainment Performance Index Model Developed in the Study

In this study, an index estimation model is developed for cinema services, which is called as Entertainment Performance Index. Stages of model development are shown in Figure 1. In the first stage, a conceptual model was created in which the measurement variables and latent variables are created. Conceptual model was crated with literature research and expert opinions. Secondly a comprehensive survey was created. In the third stage

Confirmatory Factor Analysis (CFA) was carried out. If the goodness-of-fit statistics are acceptable, then the fourth stage was accomplished by creating the Structural Equation Model (SEM). If the goodness-of-fit statistics are acceptable for SEM, the final model was accepted.

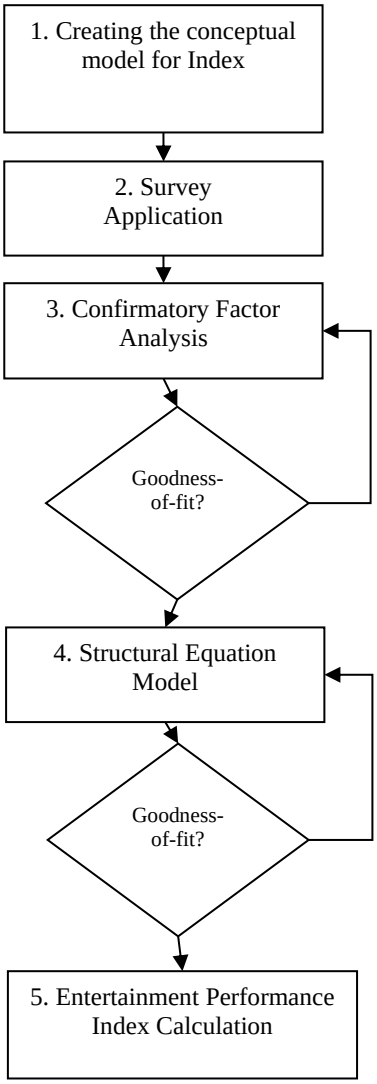


Figure 1. Stages of Model Development and Entertainment Performance Index Calculation

In the Structural Equation Model (SEM), relationship between service quality, social benefit, customer satisfaction and ambiance are determined. The solution of the SEM was carried out using Linear Structural Relations (LISREL) [32]. Structural relations and weights of measurement variables (priority coefficients) are determined in the model that minimizes estimation errors. Index scores were calculated with the outputs of the SEM. An index value was calculated for each dimension in the SEM. Then Entertainment Performance Index is calculated as average of indexes of all dimensions. In addition, a revenue management analysis was carried out for finding the relationship between customer satisfaction and revenue management applications.

2.2. Research Model and Hypotheses

The research model is as shown in Figure 2 and the research hypotheses of the study are formed as follows:

H1: Customers' perception of physical evidence significantly and positively affects their overall satisfaction with the service they receive from the movie theater.

H2: Customers' perception of social benefit significantly and positively affects their overall satisfaction with the service they receive from the movie theater.

H3: Customer satisfaction significantly and positively affects the ambiance.

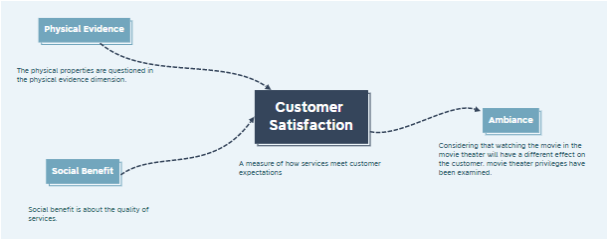


Figure 2. Entertainment Performance Index Model

In this study, the latent variables in the model are physical evidence, social benefit, satisfaction and ambiance. The physical properties are questioned in the physical evidence dimension. Social benefit is about the quality of services. They both affect the customer satisfaction and ambiance is affected by customer satisfaction. Ambiance dimension was determined for movie theaters. Considering that watching the movie in the movie theater will have a different effect on the customer, movie theater privileges have been examined. Thanks to the physical and social privileges in the hall, the questions were determined whether the audience would be more immersed in the scenario in the movie theater and whether they would feel the emotions more intensely. In this context, atmosphere and ambiance expressions were added to the conceptual model and questionnaire.

In this study, five-point Likert scale developed by Choi et al. (2015) [26] is used to investigate the frequency of customers benefiting from revenue management applications. In order to determine the effect of service quality on overall satisfaction in the scale, service quality measurement is made. It is tried to determine which dimensions of service quality affect and ways to increase overall satisfaction values.

3. RESULTS

In this section, stages of application are discussed respectively, which are data collection, normality and reliability tests, and CFA and SEM applications and index calculation.

3.1. Data Collection

In the first part of the questionnaire used in the study, there are questions about demographic data. In the second part, there are scales to measure the participants' use of revenue management applications, their satisfaction, perceived service quality [22], [33], [34] and the ambiance in the movie theater. In addition, the revenue management application scale is used [23], [26]. The survey questions are presented as Appendix. The survey was applied to 918 customers from 21 provinces in 7 regions throughout the country. The sample size was calculated with the following formula [35].

$$\boldsymbol{n = \frac{N.p.q.z^2}{p.q.z^2+(N-1).d^2}} \quad (1)$$

Here n: sample size, N: population, p: probability of occurrence of the investigated situation, q: probability of not realizing the investigated situation, z: z represents the value in the table (at 95% confidence this value is 1.96) and d: desired ± deviation according to the incidence of the event.

3.2. Normality and Reliability Test Results

A kurtosis value of ±1.0 would be considered excellent for most psychometric purposes [36]. As shown in Table 1, the skewness and kurtosis values of the variables related to physical evidence, social benefit, satisfaction and ambiance are between +1 and -1, and the data is normally distributed.

Table 1. Skewness and Kurtosis Values

Dimension	Skewness	Kurtosis
Physical Evidence	-0,387	-0,155
Social Benefit	-0,312	-0,238
Customer Satisfaction	-0,425	-0,218
Ambiance	-0,792	0,397

The results of the reliability analysis performed are shown in Table 2. Cronbach's Alpha coefficient was 0,860 for all expressions. Cronbach's Alpha coefficient between 0,80 and 1,00 is "highly reliable", a range of 0,60-0,79 is "reliable", a range of 0,40-0,59 is "low reliability" and less than 0,40 indicates that it is "not reliable" [37].

Table 2. Reliability Analysis

Dimension	Cronbach's Alpha coefficient
Physical Evidence	0,880
Social Benefit	0,911
Customer Satisfaction	0,833
Ambiance	0,718
OVERALL	0,860

3.3. Confirmatory Factor Analysis (CFA)

Application of CFA model is as shown in Figure 3 and is used to test the relationships between observed variables and the structure or structures that are supposed to be measured through these observed variables [38].

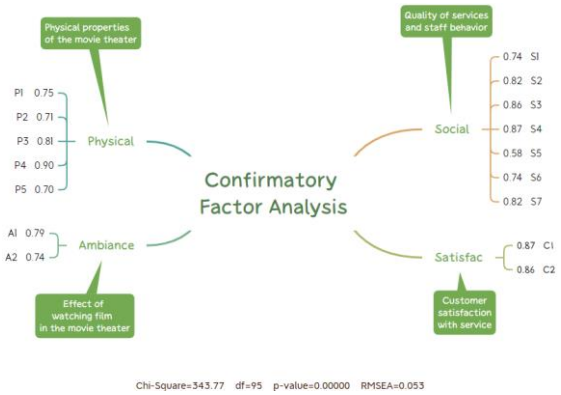


Figure 3. Diagram of Confirmatory Factor Analysis

CFA is used to determine to what extent latent variables are explained by observable variables [39]. As a result of CFA, the model's goodness-of-fit values are analyzed. In order to establish SEM, the criteria listed below must be within a certain value range [40].

•Chi-Square/df ≤ 5

•RMSEA (RootMeanSquareError of Approximation) ≤ 0,08

•CFI (Comparative Fit Index) = 0,95 – 1,00

•NFI (Normed Fit Index), NNFI (Non-Normed Fit Index) = 0,90 – 1,00

•GFI (Goodness of Fit Index) = 0,85 – 1,00

•AGFI (Adjusted Goodness of Fit Index) = 0,85 – 1,00

•p-value< 0,05

As a result of CFA analysis in this study, it has been determined that covariance connection among P1 and P2, S1 and S2, S5 and S6 are needed. As a result of this application, it was observed that the model fit values improved when the covariance connection was established between related items. Goodness of fit values of CFA application are as follows and since all the values are within the range, the SEM can be applied.

•Chi-Square/df = 343,77/95 = 3,61

•RootMeanSquareError of Approximation (RMSEA) = 0,053

•Comparative Fit Index (CFI) = 0,99

•Normed Fit Index (NFI) = 0,99

•Goodness of Fit Index (GFI) = 0,96

•Adjusted Goodness of Fit Index (AGFI) = 0,94

•P value = 0,00

3.4. Structural Equation Model (SEM)

After the hypotheses regarding the conceptual model of the research were established, the testing phase was conducted. Structural Equation Model (SEM) was used for this. After the first version of the model was run, necessary improvements were made and the model was finalized.

SEM is a practical approach that allows multiple regressions quickly without the need to examine the relationships between dimensions one by one by performing many regressions at the same time [41].

While performing SEM, first of all, a measurement model is created. The measurement model, also known as confirmatory factor analysis, evaluates the suitability of the questionnaire questions to the dimensions. After the necessary improvements are made by looking at the goodness of fit values in the model, the relations between the dimensions can be examined by applying the structural model [42], [43].

After the measurement model was created, the structural model was created and the relationship of the dimensions with each other was determined. Since p<0.05, it was understood that there was a significant relationship between the dimensions.

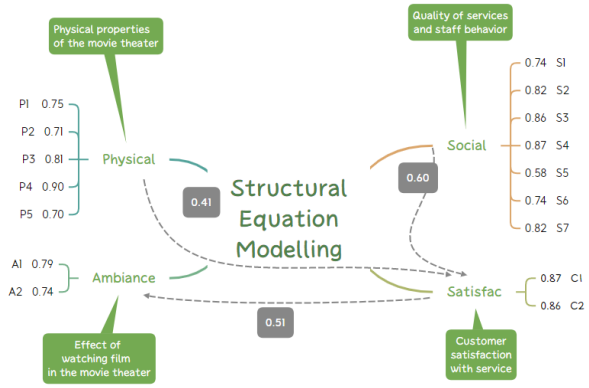


Figure 4. Diagram of Structural Equation Model (SEM)

The effects of latent variables of SEM on each other are shown in Table 3.

Table 3. SEM path coefficients

The effect of variables on each other	Path coefficients	p-value
Physical Evidence → Satisfaction	0,41	<0,001
Social Benefit → Satisfaction	0,60	<0,001
Satisfaction → Ambiance	0,51	<0,001

When the findings are examined;

- It is seen that customers' physical evidence perception has a significant, positive and medium-level effect on satisfaction (β = 0,41; p<0,001).
- Customers' perception of social benefits has a significant, positive and high-level effect on satisfaction, (β = 0.60; p<0,001).
- Finally, it is seen that customer satisfaction has significant, positive and high-level effect (β=0,51; p<0,001) on the ambiance.

According to these results, the H1, H2 and H3 hypotheses were accepted.

3.5. Calculating the Entertainment Performance Index

W: Weight

X: Measurement variable

E: Entertainment Performance Index value

Entertainment Performance Index is calculated in two stages. In the first stage, index values for each latent variable were calculated with Equation 2. The result was multiplied with 20 in order to normalize the index scores between 0 and 100.

$$\boldsymbol{E_i} = \frac{\sum_{i=1}^{m} \sum_{j=1}^{n} \boldsymbol{W_{ij*} X_{ij}}}{\sum_{i=1}^{m} \sum_{j=1}^{n} \boldsymbol{W_{ij}}} * \mathbf{20} \quad (2)$$

And Entertainment Performance Index is calculated with Equation 3:

$$\text{Index Score} = \frac{\sum_{i=1}^{k} \boldsymbol{Ei}}{\boldsymbol{k}} \quad (3)$$

The index values calculated for the physical evidence, social benefit, customer satisfaction ambiance dimensions and Entertainment Performance Index result are as shown in Table 4.

Table 4. Index Scores for Latent Variables and Entertainment Performance Index

Latent Variable	Measurement Variables	Mean (x)	w	x*w	Index Value (E)
Physical Evidence	P1	3,8	0,7	2,8	76,7
	P2	4,0	0,7	2,8	
	P3	3,8	0,8	3,0	
	P4	3,7	0,9	3,3	
	P5	3,7	0,7	2,6	
Social Benefit	S1	3,9	0,7	2,9	77,6
	S2	3,9	0,8	3,2	
	S3	3,7	0,8	3,2	
	S4	3,9	0,8	3,4	
	S5	4,0	0,5	2,3	
	S6	3,7	0,7	2,7	
	S7	3,7	0,8	3,0	
Customer Satis	C1	3,9	0,8	3,4	78,4
	C2	3,8	0,8	3.3	
Ambiance	A1	3,94	0,7	3,11	81,8
	A2	4,24	0,74	3,142	
Entertainment Performance Index = 78,667					

According to the Turkish Customer Satisfaction Index model of the Turkish Quality Association [44], the score values calculated for each dimension are unacceptable in the 0-54 value range, very weak in the 55-59 value range, low in the 60-64 value range, moderate in the 65-74 value range, good in the 75-79 value range, very good in the 80-84 value range, and extraordinary customer satisfaction in the 85-100 value range [45].

According to the service performance index results obtained in the study, as seen in Table 4 and Figure 5, the physical evidence was calculated as good with 76, the social benefit was calculated as good with 77, the ambiance was calculated as very good with 81 and the general satisfaction was calculated as good with 78.

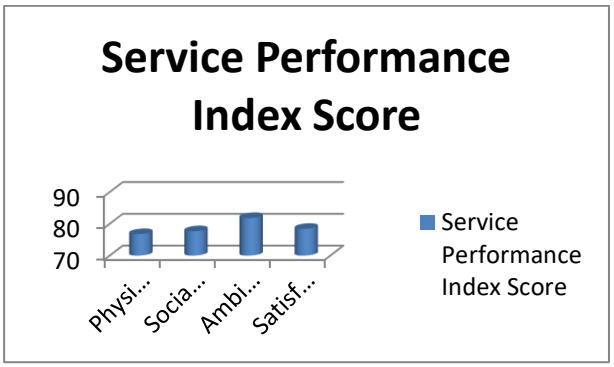


Figure 5. Entertainment Performance Index Scores

3.6. Revenue Management Applications and Its Relationship with the Entertainment Performance Index

7 different revenue management applications are mentioned and an index value comparison (out of 5) of the customers who benefit the least and the customers who benefit the most is given.

i. First revenue management application: "Buying a ticket to a more discounted session early in the morning, on weekdays or on a public day than on a regular day."

• The index value for the satisfaction dimension of the people who use it at the 1 level, that is, who answered ''never'' in the survey, is 3,88.

• The index value for the satisfaction dimension of the people who use it at the 5 level, that is, who answered ''always'' in the survey, is 4,24.

ii. The second revenue management application; "Getting discounted tickets with a subscription or early purchase."

• The index value for the satisfaction dimension of the people who use it at the 1 level, that is, who answered ''never'' in the survey, is 3,88.

• The index value for the satisfaction dimension of the people who use it at the 5 level, that is, who answered ''always'' in the survey, is 4,25.

iii. Third revenue management application; "Getting discounted tickets because the customer is a certain age group or elder."

• The index value for the satisfaction dimension of the people who use it at the 1 level, that is, who answered ''never'' in the survey, is 3,93.

• The index value for the satisfaction dimension of the people who use it at the 5 level, that is, who answered ''always'' in the survey, is 4,08.

iv. Fourth revenue management application; "Buying discounted tickets according to the position of the seat where you watch the movie."

• The index value for the satisfaction dimension of the people who use it at the 1 level, that is, who answered ''never'' in the survey, is 4,00.

• The index value for the satisfaction dimension of the people who use it at the 5 level, that is, who answered ''always'' in the survey, is 4,06.

v. The fifth revenue management application; "Getting discounted tickets for paying with a contracted credit card."

• The index value for the satisfaction dimension of the people who use it at the 1 level, that is, who answered ''never'' in the survey, is 3,92.

• The index value for the satisfaction dimension of the people who use it at the 5 level, that is, who answered ''always'' in the survey, is 4,16.

vi. Sixth revenue management application; "Buying discounted tickets with the privileges of your mobile line."

• The index value for the satisfaction dimension of the people who use it at the 1 level, that is, who answered ''never'' in the survey, is 3,94.

• The index value for the satisfaction dimension of the people who use it at the 5 level, that is, who answered ''always'' in the survey, is 4,13.

vii. Seventh revenue management application; "Getting a discount because you buy corn and similar foods with the movie ticket."

• The index value for the satisfaction dimension of the people who use it at the 1 level, that is, who answered ''never'' in the survey, is 3,88.

• The index value for the satisfaction dimension of the people who use it at the 5 level, that is, who answered ''always'' in the survey, is 4,15.

As it can be understood from these results, customer satisfaction level of who benefit from revenue management applications is higher than those of customers who benefit less from revenue management applications.

4.DISCUSSION

Physical evidence and social benefit are the two dimensions of service quality. Based on the results service quality affects customer satisfaction similar to the studies of [20] and [21]. Then the relationship between service quality and satisfaction was investigated and hypothesis 1 and 2 was confirmed. As customers' satisfaction with the movie theater increases, they become more immersed in the script and experience emotions more intensely while in the movie theater.According to the results of examining the relationship between satisfaction and ambiance, hypothesis 3 was accepted.

In this study, after analysis with structural equation modeling, an entertainment performance index was created from the results obtained. The physical evidence

was calculated as good level, the social benefit was calculated as good level, the ambiance was calculated as very good level and the general satisfaction was calculated as good level.

In addition the comparison was made according to the frequency of customers benefiting from revenue management campaigns and discounts. According to the results, people who always benefit revenue management campaigns are more satisfied than the people who never get discounts via revenue management applications. The present study clearly explored that revenue management practices has an impact on customer perception. This is consistent with the previous study findings [23], [26]. Based on the results of the analysis, it is seen that customer perception factors which are service quality, satisfaction and ambiance are affected by the frequency of using revenue management campaigns.

In addition, the future studies by defining the target customer group with precise boundaries with personalized questions, for example; adventure-movie fans in the Marmara Region 25-40 years old, can make a different contribution to the literature in a different dimension.

Further research into an evaluation with the theme of neuro marketing, supported by artificial intelligence/machine learning algorithms to measure customer satisfaction, will also contribute to the literature.

5. CONCLUSIONS

Creating a service performance index is the main purpose of the study. In order to create the index, conceptual models were designed and analyzed with structural equation modeling. The index was created with the standardized regression coefficients obtained from the structural equation modeling of the effects of the dimensions in the model to each other. While creating the index, it has been tried to find answers to the questions of the effect of service quality on satisfaction in the structural equation modeling and how customer satisfaction affects the atmosphere and ambiance created as a result of watching the movie in the movie theater.

As a result of the researches carried out in this study, ambiance dimension is formed in the movie theater entertainment performance index model and its relationship with satisfaction is found to be statistically significant. It has been understood that ambiance is an important criterion in movie theaters. As a result of the findings, atmosphere and ambiance would complement and form the framework for the customer satisfaction, physical evidence and social benefit, for the entertainment industry.

It has been concluded that the perception of social benefit and physical evidence of customers, and that satisfaction also has a significant and positive effect on ambiance. Based on these findings, it can be argued that the high quality of service perceived by the customers increases the customer satisfaction and thus leaves him/herself more to the atmosphere and ambiance of the environment. According to results obtained in the study, physical evidence index was calculated as 76,761; social benefit as 77,665; customer satisfaction as 78,418 and ambiance as 81,822. The lowest index score is of physical evidence dimension. For this reason, the physical properties of movie theaters should be improved. Companies who want their customers to prefer movie theaters instead of watching movies at home should improve the quality of service by keeping the physical conditions and customer relations of the movie theaters at high quality.

According to revenue management results, the customer satisfaction index value of customers who always benefit from revenue management applications and campaigns is higher than those who never use them. This conclusion was reached by additional analysis for customers in different categories who follow different revenue management strategies. In future studies, the research might be replicated with different customer perception dimensions and the effect of revenue management on these dimensions can be examined.

DECLARATION OF ETHICAL STANDARDS: The author(s) of this article declare that the materials and methods used in this study do not require ethical committee permission and/or legal-special permission.

YAZAR KATKILARININ BEYANI:

Kübra İpek ÖZEK: Performed the experiments, analyse the results and wrote the manuscript.

Adnan AKTEPE: Checked the analysis results and made the necessary corrections in the article.

Süleyman ERSÖZ: Checked the analysis results and made the necessary corrections in the article.

ÇIKAR ÇATIŞMASININ BEYANI: There is no conflict of interest in this study.

Appendix A

Survey Questions

Demographic Data

1. Your Gender: Female ( ) Male ( )

2. Your Marital Status : Married ( ) Single ( )

3. Your age :

4. Your Educational Status: Primary School ( ) Middle School ( ) High School ( ) Undergraduate ( ) Graduate ( )

5. City where you live:

6. What is your family's total monthly income?:

7. How many times do you go to the movies a year?:

8. How much did you like the last movie you watched in the last movie theater you went to? 1 ( ) 2 ( ) 3 ( ) 4 ( ) 5 ( )

Physical Evidence

P1. It has modern looking equipment. 1 ( ) 2 ( ) 3 ( ) 4 ( ) 5 ( )

P2. Sound and image quality is good. 1 ( ) 2 ( ) 3 ( ) 4 ( ) 5 ( )

P3. Buildings and indoor environment are pleasing to the eye. 1 ( ) 2 ( ) 3 ( ) 4 ( ) 5 ( )

P4. The goods and materials used while serving are sufficient and modern-looking. 1 ( ) 2 ( ) 3 ( ) 4 ( ) 5 ( )

P5. The seats are comfortable. 1 ( ) 2 ( ) 3 ( ) 4 ( ) 5 ( )

Social Benefit

S1. Staff always answer customers' questions. 1 ( ) 2 ( ) 3 ( ) 4 ( ) 5 ( )

S2. Employees provide fast service to their customers. 1 ( ) 2 ( ) 3 ( ) 4 ( ) 5 ( )

S3. Sincere attention is paid to customers' requests. 1 ( ) 2 ( ) 3 ( ) 4 ( ) 5 ( )

S4. Employees are always respectful and courteous to customers. 1 ( ) 2 ( ) 3 ( ) 4 ( ) 5 ( )

S5. Sessions start on time and other services are always provided at the requested time. 1 ( ) 2 ( ) 3 ( ) 4 ( ) 5 ( )

S6. Follow-up of the service is carried out meticulously. 1 ( ) 2 ( ) 3 ( ) 4 ( ) 5 ( )

S7. Behaviors of employees create a sense of trust in customers. 1 ( ) 2 ( ) 3 ( ) 4 ( ) 5 ( )

Customer Satisfaction Questions

C1. I am generally satisfied with the service I received from the movie theater. 1 ( ) 2 ( ) 3 ( ) 4 ( ) 5 ( )

C2. I recommend this movie theater when someone asks me for advice. 1 ( ) 2 ( ) 3 ( ) 4 ( ) 5 ()

Ambiance Questions

A1. When I watch the movie in the movie theater, I get rid of all my thoughts and feel myself in the script.

1 ( ) 2 ( ) 3 ( ) 4 ( ) 5 ( )

A2. I feel emotions such as fear, excitement and happiness more intensely in the atmosphere of the movie theater. 1 ( ) 2 ( ) 3 ( ) 4 ( ) 5 ( )

Revenue Management Questions

How often do you use the following applications?

1. Buying a ticket to a more discounted session early in the morning, on weekdays or on a public day than on a regular day.

Never ( ) Rarely ( ) Usually ( ) Often ( ) Always ( )

2. Buying discounted tickets with a subscription or by purchasing at an early date.

Never ( ) Rarely ( ) Usually ( ) Often ( ) Always ( )

3. To get discounted tickets because the customer is a certain age group or senior.

Never ( ) Rarely ( ) Usually ( ) Often ( ) Always ( )

4. Buying discounted tickets according to the position of the seat where you watch the movie.

Never ( ) Rarely ( ) Usually ( ) Often ( ) Always ( )

5. Buying discounted tickets for paying with a contracted credit card.

Never ( ) Rarely ( ) Usually ( ) Often ( ) Always ( )

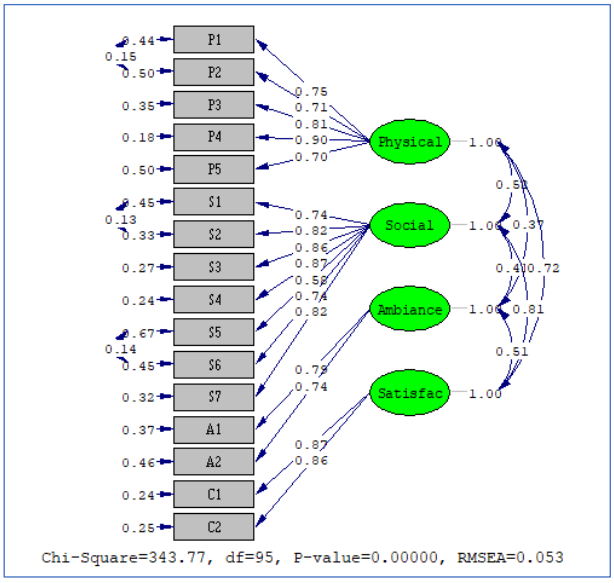
6. Buying discounted tickets with the privileges of your mobile line.

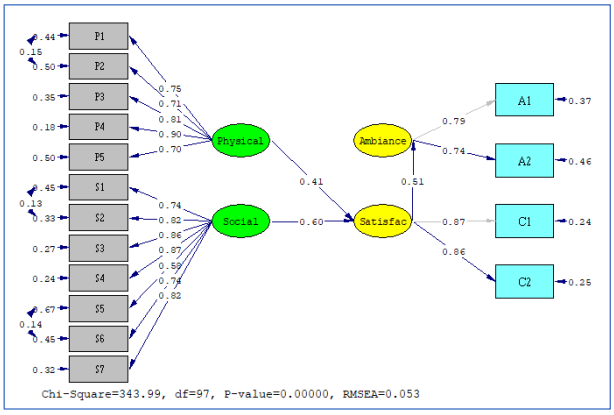
Never ( ) Rarely ( ) Usually ( ) Often ( ) Always ( )

7. Getting a discount for buying corn and similar foods together with the movie ticket.

Never ( ) Rarely ( ) Usually ( ) Often ( ) Always ( )

Appendix B





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