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MARKETING RESEARCH ON PASSENGER SATISFACTION WITH PUBLIC TRANSPORT SERVICE IN THE CITY OF BELGRADE

ABSTRACT

The aim of this paper is to determine, based on conducted marketing research, the level of passenger satisfaction with public transport services for the purpose of making better marketing decisions in the example of the City of Belgrade. The main task is to test the hypothesis on the existence of significant influence of factors, such as quality service, attitude and behaviour of employees (e.g. driver), adequate informing, quality of vehicles, line routes and timetable, on passenger satisfaction. Correlation coefficient and regression analysis were used for interpreting the obtained results and examining the formulated hypothesis. Empirical research has shown that there is a significant correlation between the aforementioned factors and passenger satisfaction with public transport services. The obtained results provided recommendations and guidelines for improving and increasing the quality of public transport services. The research results also provide the basis for future research that could examine the relationship between passenger satisfaction with services and sub-groups within the analyzed factors.

KEY WORDS

transport; public transport; marketing research; marketing strategy; elements of marketing mix; passengers; satisfaction;

1. INTRODUCTION

The task and the goal of every market-oriented service organization is a satisfied customer, and this is achieved if the customer's experience of service exceeds their expectations regarding the service itself [1-2]. A customer buys the service which they believe will in the best way contribute to fulfilling their needs and desires [3]. The needs and desires vary among people [4]. This explains why the consumer is actually the final verifier not only of the service quality, but also of the very performances of service organization, which affects the future relationship between the user and service provider [5-6].

In this regard, even providers of public transport services have to keep in mind that only the passengers, i.e. their (dis)satisfaction determine the quality of services [7]. For making appropriate marketing decisions and improving the quality of services, passenger satisfaction has to be permanently studied [8-9].

Based on the research conducted at the Faculty of Engineering, University of Novi Sad [10-12], the following factors have been established as important for the perception of quality of the public transport services: well-organized timetable, professionalism and expertise of employees, good vehicles, adequate public transport lines, affordable price, prompt inform-

ing, etc. When outlining high-quality public transport services, the service provider should also note the following important parameters that relate to the abovementioned factors: Service Support Performance; Service Operability Performance, Service Availability Performance, Service Integrity, Production System Capability and System Dependability [13-14].

Research on quality of public transport services has been carried out across Europe and the world. One such study was conducted in Bucharest (the city with a similar population as Belgrade). The results of this study showed that the improvement of quality and efficiency of public transport are very important issues. The identification of passenger needs and desires is of great importance for appropriate resolving of these issues [15]. In this sense, the conclusion is that it is necessary to reduce the waiting time at stops, increase the frequency of departures, increase the number of lines, increase the number and quality of vehicles, especially during peak hours, unify the means of transport by a single colour, improve the cleanliness in vehicles, lower the price of service along with optimization of quality, etc. [16]. The general conclusion arising from this study is that although the majority of passengers are satisfied with the state of local public transport, they still want to see it improved in terms of quality.

The idea for this paper has resulted from the findings of a previous paper, which had clearly elaborated on the needed permanent implementation of research on passenger opinion regarding public transport, in terms of both overall and specific determinants of transport service quality regarded as important by passengers, with the aim of improving the quality of transport service and increasing passenger satisfaction.

The importance of scientific research conducted in this paper is based on the fact that successful management of marketing strategy requires the providers of public transport services to seek accurate, reliable and timely feedback from the passengers.

This scientific research was conducted to determine the level of satisfaction of public transport users in Belgrade aimed at improving the quality of services provided. The scientific contribution of this research lies in the fact that it attempts to answer the open question of proper and timely identification of key parameters of passenger satisfaction.

2. METHODOLOGY OF RESEARCH

2.1 Subject of research

Research on passenger satisfaction with public transport services is the starting point for identifying factors that contribute to the selection of transport operator, as well as for further use of the obtained data in order to improve public transport services. The chosen subject of this research is to examine the satisfaction with various aspects of public transport operator and determine the parameters that can contribute to greater satisfaction.

2.2 Objectives of research

The study was aimed at examining the link between certain factors and Belgrade passenger satisfaction with public transport services. The study indirectly provides information on the target group of passengers, choices they make, their needs, as well as the frequency of using public transport services. The research was conducted with the ultimate goal of adopting marketing strategy that will neutralize factors causing passenger dissatisfaction with public transport services.

The research should contribute to formulating and defining of key aspects of passenger satisfaction with public transport, with the aim of improving passenger satisfaction.

2.3 Research assignments

Research assignments are formulated based on the previously defined research subject and objectives. The main assignment of this research is to determine indicators of satisfaction or dissatisfaction with the operation and services of Belgrade public transport.

Research assignments are the following:

- Investigate how frequently public transport services are used.
- Identify the factors that influence the selection of public transport operator.
- Identify more frequent choices of transport operator.
- Rate the behaviour and attitude of employees in public transport.
- Investigate the satisfaction with adherence to timetable.

2.4 Hypotheses

Null hypothesis:

- Passenger satisfaction with Belgrade public transport is assumed to be determined by the quality of service provided.

Specific hypotheses:

- Significant correlation between demographic characteristics is assumed: gender, age, employment, and satisfaction with driver's behaviour and attitude in Belgrade public transport.
- Significant correlation is assumed between satisfaction with adherence to scheduled timetable and frequency of use of public transport.

– Significant correlation is assumed between satisfaction with adherence to scheduled timetable and number of lines that passengers have to change in order to reach the desired destination.

2.5 Research techniques and procedures

Empirical research carried out for this study is quantitative, transversal. It provides overview and ability to perceive the situation in the given time period.

The research was conducted in three phases:

1. Collecting data through a survey created for research purposes;
2. Sorting and grouping of data, and
3. Data processing by statistical analysis.

PAPI (Paper and pencil interviewing) technique was used for surveying, where the interviewers questioned face-to-face the participants in the research and wrote down their answers.

The research in the field was conducted for the users of public transport (bus transport) in Belgrade (Belgrade also has trolley and tram transport). According to data from December 2012, Belgrade had 1,197 buses, where 800 (697 operational at the time) were owned by the public city bus operator, and 397 privately owned ones.

The questionnaire was formed for collecting necessary data, according to all scientific criteria. The questionnaire contained different theory-based types of questions: dichotomous questions, multiple-choice questions, rating scale, ranking scale, Likert scale, etc. Questions in the questionnaire were clear and understandable, while answers were voluntary and anonymous.

The research included exactly 100 respondents who formed a random test sample, with the sole condition of using public transport services at least once a week.

The research was conducted from 1st February to 10th February 2013.

Sample structure:

Table 1 - Gender

	Structure	Frequency %
Male	58	58.0
Female	42	42.0
Total	100	100.0

Source: Author's calculations

Table 2 - Age

	Structure	Frequency %
Under 40	65	65.0
Over 40	35	35.0
Total	100	100.0

Source: Author's calculations

Table 3 - Employment

	Structure	Frequency %
Employed	37	37.0
Unemployed	15	15.0
Students, pupils	36	36.0
Retired	12	12.0
Total	100	100.0

Source: Author's calculations

Descriptive statistics was used for summarizing the collected data, which described research results by tables for frequency and percentages. The inferential statistics was used to test the null hypotheses and determine the connection and causal relation between the variables.

The correlation between variables with data obtained from a nominal scale was established by contingency coefficient, while the correlation of variables by interval-level data was obtained by Pearson correlation coefficient. The effect of independent variable on dependent variable was determined by regression analysis, in cases that had previously shown a significant correlation.

Correlation coefficient or Pearson coefficient calculated as the ratio between the covariance and the standard deviations product of tested variables.

$$R = \frac{\sum_{i=1}^{n} X_i Y_i - n\overline{XY}}{n\sigma_x \sigma_y} \quad (1)$$

The correlation coefficient was interpreted in relation to the following classification of correlation intensity according to its absolute value:

– From 0.00 to 0.20 implies no or negligible correlation;
– From 0.20 to 0.40 implies correlation of low intensity;
– From 0.40 to 0.70 implies correlation of medium intensity;
– From 0.70 to 1.00 implies connection of high or very high intensity.

Formulated hypotheses are further examined based on P-value test. P value is the minimum value of the probability of error of the first kind (i.e. minimum α) that still rejects the null hypothesis.

3. RESULTS AND DISCUSSIONS

In order to determine how frequently they use public transport, the respondents were asked "How often do you use public transport during the week?", where they were offered three possible answers. The most frequent answer was three to five times a week. A third of the respondents stated that they use public transportation daily, and nearly one-fifth answered they use these services 1 to 2 times a week. In order to verify

the existence of correlation between variables gender and frequency of using public transport, these two variables were combined.

Table 4 - Correlation between gender and question "How often do you use public transport during the week?"

	Gender		Total
	Male	Female	
1-2 times a week	17.2%	21.4%	19.0%
3-5 times a week	50.0%	45.2%	48.0%
Every day	32.8%	33.3%	33.0%
Total	100.0%	100.0%	100.0%
Contingency Coefficient	Value	p	
	0.058	0.843	

Source: Author's calculations

The results indicate that the majority of the target group of regular daily users of public transport services are women. In comparison to men, it has been noticed that women state to a greater extent that they use public transportation services every day, while the greatest number of men say they use these services three to five times a week. Data are not statistically significantly correlated.

Table 5 - Correlation between the age and the question "How often do you use public transport during the week?"

	Age		Total
	Under 40	Over 40	
Every day	32.3%	34.3%	33,0%
1-2 times a week	15.4%	25.7%	19,0%
3-5 times a week	52.3%	40.0%	48,0%
Total	100.0%	100.0%	100,0%
Contingency Coefficient	Value	p	
	0.141	0.364	

Source: Author's calculations

Significant correlation was not obtained by cross-referencing age and frequency of using public transport services. This all points to the conclusion that the target group of everyday users of public transportation largely consists of respondents older than 40, while the majority of respondents younger than 40 use public transport three to five times a week.

Comparative review of gender-disaggregated data provided precise information about the target group of everyday passengers. In fact, they are mostly men over 40 and women younger than 40.

Behaviour and attitude of public transport operators' drivers, whose services are used by the respondents, are rated on a scale from 1 to 5, with 1 being the lowest and 5 being the highest. The average rate of satisfaction with this aspect of public transport is 1.79 indicating a pronounced dissatisfaction of public transport users.

Table 7 - Correlation between gender and satisfaction with drivers' behaviour and attitude

	Mean	Frequency
Male	1.55	58
Female	2.12	42
Total	1.79	100
R		0.329*
p		0

**correlation of low intensity*
Source: Author's calculations

In relation to gender, there was a statistically significant, low and positive (R=0.329) correlation. It has been observed that women give higher rates to drivers' behaviour and attitude, which implies that women are on the average more satisfied with the behaviour and attitude of drivers than men.

Table 6 - Correlation between gender, age and the question "How often do you use public transport during the week?"

		How often do you use public transport during the week?			Total
		1-2 times a week	3-5 times a week	Every day	
Male	Under 40	16.70%	55.60%	27.80%	100.00%
	Over 40	18.20%	40.90%	40.90%	100.00%
	Total	17.20%	50.00%	32.80%	100.00%
Contingency Coefficient		Value		p	
		0.149		0.516	
Female	Under 40	13.80%	48.30%	37.90%	100.00%
	Over 40	38.50%	38.50%	23.10%	100.00%
	Total	21.40%	45.20%	33.30%	100.00%
Contingency Coefficient		Value		p	
		0.271		0.189	

Source: Author's calculations

Table 8 - Correlation between age and satisfaction with drivers' behaviour and attitude

	Mean	Frequency
Under 40 years	1.97	65
Over 40 years	1.46	35
Total	1.79	100
R		|0.287|*
p		0.004

**correlation of low intensity*
Source: Author's calculations

Significant correlation of this aspect was obtained in relation to the respondents' age. It has been noticed that the driver behaviour and attitude are rated higher by respondents younger than 40, compared to the older ones.

Table 9 - Correlation between employment satisfaction with drivers' behaviour and attitude

	Mean	Frequency
Employed	1.41	37
Unemployed	2.07	15
Students, pupils	1.92	36
Retired	2.25	12
Total	1.79	100
R		0.325*
p		0.001

**correlation of low intensity*
Source: Author's calculations

By comparing the average rates of satisfaction in relation to employment categories, it can be concluded that the driver behaviour and attitude are rated with highest rates by retired people, then by the unemployed, then by students/ pupils, and with the lowest rates by the employed. The correlation between these two variables is significant, of low-intensity and positive.

The linear regression confirmed the correlation between the demographic variables and rates of driver behaviour and attitude.

Table 10 - Regression analysis – demographic variables (gender, age, employment status) and rating of driver behaviour and attitude

	B	Std. Error	β	t	Sig.
(Constant)	1.278	0.353		3.615	0.000
Gender	0.458	0.156	0.265	2.933	0.004
Age	-0.441	0.159	-0.247	-2.767	0.007
Employment	0.205	0.072	0.259	2.867	0.005

Source: Author's calculations

All three variables make a significant unique contribution to the evaluation of this aspect, observing that the highest Beta coefficient is 0.265, being the value for the variable of gender, based on which it can be concluded that this variable alone contributes the most to explaining the rating of driver behaviour and attitude, if the variance explained by other variables in the model is excluded. Beta coefficient is slightly lower for employment (β = 0.259), which means that contribution of this variable is smaller. With regard to age, Beta coefficient has a negative value (β =- 0.247), which implies decreasing likelihood that younger respondents will rate driver behaviour and attitude with lower rates.

In order to identify the critical factors in choosing a public transport operator, the respondents specified factors that affect the most their personal choice. Comfort is seen as a crucial factor in choosing the public transport operator, followed by transport lines and timetable with equal influence. The important factor ranked the third is cleanliness.

Table 11 - Correlation between gender and factors of crucial importance in choosing public transport services

	Gender		Total
	Male	Female	
Comfort	17.20%	42.90%	28.00%
Cleanliness	15.50%	9.50%	13.00%
Price	13.80%	2.40%	9.00%
Safety	5.20%	2.40%	4.00%
Line	25.90%	19.00%	23.00%
Timetable	22.40%	23.80%	23.00%
Total	100.00%	100.00%	100.00%
Contingency Coefficient	Value	p	
	0.313	0.054	

Source: Author's calculations

In order to determine the target group relative to this question, data have been combined with the variable of gender. The correlation between variables is not significant, but it can be seen that comfort, as a crucial factor, has been largely chosen by women, compared to men. On the other hand, the majority of men opted for transport lines as a key factor in selecting public transport operator.

The users of the state-owned transport operator regard timetable as a critical factor in their selection of the operator, while the users of private transport operator think lines play the most important part in their decision. Comfort is mentioned as the most important factor by the respondents for whom the owner of the public transport services is not important.

To determine the frequency of choice of service provider, public transport users have been asked whether they use more frequently the services of state-owned operators or the private ones. More than half of the respondents stated that the information on the owner of the transport operator is irrelevant, 27% pointed

Table 12 - Correlation between key factors influencing the choice of service provider and the choice of service provider

		Do you use state-owned or private public transport?			Total
		State-owned	Private	All the same	
What are your critical factors in choosing public transport operator?	Comfort			50.0%	28.0%
	Cleanliness		5.9%	21.4%	13.0%
	Price	3.7%	23.5%	7.1%	9.0%
	Safety			7.1%	4.0%
	Line	11.1%	70.6%	14.3%	23.0%
	Timetable	85.2%			23.0%
	Total	100.0%	100.0%	100.0%	100.0%
Contingency Coefficient		Value		Approx. Sig.	
		0.738		0.000	

Source: Author's calculations

out that they frequently use the services of the state-owned operator, and 17% of the respondents use private transport operator.

Table 13 - Correlation between age and the question "Do you use more often the services of state-owned or private transport operator?"

	Age		Total
	Under 40	Over 40	
State-owned	20.00%	40.00%	27.00%
Private	7.70%	34.30%	17.00%
All the same	72.30%	25.70%	56.00%
Total	100.00%	100.00%	100.00%
Contingency Coefficient	Value	p	
	0.422	0.000	

Source: Author's calculations

Significant correlation was determined between the selection of a specific operator and the respondent's age. It can be seen that the respondents younger than 40 mostly do not attach importance to the information on the transport operator owner, while respondents older than 40 largely choose the services of a state-owned transport operator.

Gender-segregated sample leads to the conclusion that men younger than 40 mostly think that information on the owner of the transport operator is not relevant to their choice of transport operator, whereas respondents older than 40 more frequently choose services of the state-owned transport operator. This enabled a statistically significant correlation between the data.

For the subsample of women, there was no statistically significant correlation between age and choice of transport operator. Both older and younger women mostly state that whether transport operator whose services they use is state-owned or private is irrelevant.

For the subsample of male respondents, there was a statistically significant correlation between employment and choice of transport operator. The correlation is of medium intensity and positive. Most employees

Table 14 - Correlation between gender, age and the question "Do you use more often the services of state-owned or private transport operator?"

		Do you use state-owned or private public transport?				Total
		State-owned	Private	All the same		
Male	Under 40	16.70%	11.10%	72.20%		100.00%
	Over 40	50.00%	40.90%	9.10%		100.00%
	Total	29.30%	22.40%	48.30%		100.00%
Contingency Coefficient		Value		p		
		0.523		0		
Female	Under 40	24.10%	3.40%	72.40%		100.00%
	Over 40	23.10%	23.10%	53.80%		100.00%
	Total	23.80%	9.50%	66.70%		100.00%
Contingency Coefficient		Value		p		
		0.298		0.129		

Source: Author's calculations

Table 15 - Correlation between gender, employment and the question "Do you use more often the services of state-owned or private transport operator?"

		Do you use state-owned or private public transport?			Total
		State-owned	Private	All the same	
Male	Employed	30.80%	42.30%	26.90%	100.00%
	Unemployed	42.90%	14.30%	42.90%	100.00%
	Students, pupils	15.00%	0.00%	85.00%	100.00%
	Retired	60.00%	20.00%	20.00%	100.00%
	Total	29.30%	22.40%	48.30%	100.00%
Contingency Coefficient		Value		p	
		0.522		0.001	
Female	Employed	9.10%	18.20%	72.70%	100.00%
	Unemployed	50.00%	12.50%	37.50%	100.00%
	Students, pupils	31.30%	0.00%	68.80%	100.00%
	Retired	0.00%	14.30%	85.70%	100.00%
	Total	23.80%	9.50%	66.70%	100.00%
Contingency Coefficient		Value		p	
		0.429		0.15	

Source: Author's calculations

Table 16 - Correlation between gender, age and the question "Are you satisfied with adherence to scheduled timetable?"

		Are you satisfied with adherence to scheduled timetable?		Total
		Satisfied	Dissatisfied	
Male	Under 40	10.30%	51.70%	62.10%
	Over 40	10.30%	27.60%	37.90%
	Total	20.70%	79.30%	100.00%
Contingency Coefficient		Value	p	
		0.126	0.333	
Female	Under 40	16.70%	52.40%	69.00%
	Over 40	7.10%	23.80%	31.00%
	Total	23.80%	76.20%	100.00%
Contingency Coefficient		Value	p	
		0.012	0.941	

Source: Author's calculations

choose a private transport operator, as opposed to the retired who often select a state-owned transport operator. Students/pupils mainly report that it is all the same to them whether the transport operator is state- or privately owned, while one half of the unemployed state that they use the services of the state-owned operator and the other half think it is irrelevant who owns it.

For the subsample of women, there is no statistically significant correlation between employment and choice of operator. Women of all categories of employment mostly answered "all the same", apart from the majority of unemployed women who use the services of the state-owned transport operator.

Satisfaction with adherence to scheduled timetable is rated as an aspect of satisfaction with public transport services. Respondents rated their satisfaction with this aspect on a five-rate scale. The centrally offered answer "I do not know" was not chosen by any respondent, and therefore it is not graphically presented. The obtained results show that the respondents are overwhelmingly dissatisfied with this aspect (78%), while 22% are satisfied. If the satisfaction were numerically presented, the average rate would be 2.17 which is unsatisfactory.

Crossing data with demographic characteristics does not provide a significant correlation. Respondents of all categories are predominantly dissatisfied with this aspect.

Crossing of satisfaction with adherence to the established timetable and the frequency of using public transport services enables a statistically significant correlation between these two variables. The results show that the majority of everyday passengers are

Table 17 - Correlation between frequency of using public transport and satisfaction with adherence to scheduled timetable

		Are you satisfied with adherence to scheduled timetable?		Total
		Satisfied	Dissatisfied	
How often do you use public transport during the week?	1-2 times a week	40.90%	12.80%	19.00%
	3-5 times a week	54.50%	46.20%	48.00%
	Every day	4.50%	41.00%	33.00%
	Total	100.00%	100.00%	100.00%
Contingency Coefficient		Value	p	
		0.354	0.001	

Source: Author's calculations

Table 18 - Logistic regression of frequency of using public transport services and satisfaction with adherence to the scheduled timetable

	B	S.E.	Wald	df	Sig.	Exp(B)
Frequency of using public transport			9.712	2	0.01	
Frequency of using public transport (1)	-3.360	1.115	9.089	1	0.003	0.035
Frequency of using public transport (2)	-2.367	1.069	4.905	1	0.03	0.094
Constant	3.466	1.016	11.647	1	0.001	32.000

Source: Author's calculations

dissatisfied, while respondents who rarely use public transport (three to five times a week) are satisfied.

Logistic regression was used to confirm that respondents who frequently use public transportation are likely to be dissatisfied with this aspect. The entire model is statistically significant $\chi^2(2, N = 100) = 16.148$, $p < 0.001$, which shows that the model distinguishes the respondents who are satisfied from those who are not. The model explains between 14.9% and 22.9% variances and accurately classifies 78% of cases.

Table 18 shows that the frequency of using public transport gives a unique statistically significant contribution to the satisfaction with adherence to the established timetable. The most significant contribution is provided by the combination of categories every day and 3-5 times a week, where the value of B depicts negative correlation, leading to the conclusion that the more frequently the respondents use transport services the less likely it is that they are to be satisfied. The quotient of likelihood is 0.094 and it is less than 1, which shows that everyday passengers with increasing frequency of using public transport services state 0.094 times less frequently that they are satisfied with adherence to the scheduled timetable.

In order to test the correlation between the frequency of using public transport determined by a certain number of lines the respondents must change in order to reach the desired destination and satisfaction with adherence to scheduled timetable, these two variables are crossed, which has confirmed the existence of a statistically significant correlation. The results indicate that there are more dissatisfied respondents than the satisfied ones, among those who do not have to change the line to get to the destination, as well as among the respondents who must change one to two lines. There are more satisfied respondents among those who have to change three or more lines in order to reach their destination.

The correlation between the obtained results has been further checked and confirmed. Data from *Table 20* indicate that combination of answers NO and 3 or more lines gives the most statistically unique contribu-

Table 19 - Correlation between the question "Do you have to change several lines to get to your destination when using public transport services?" and satisfaction with adherence to scheduled timetable

		Are you satisfied with adherence to scheduled timetable?		Total
		Satisfied	Dissatisfied	
Do you have to change several lines to get to your destination when using public transport services?	no	22.70%	25.60%	25.00%
	1 – 2	40.90%	73.10%	66.00%
	3 & more	36.40%	1.30%	9.00%
	Total	100.00%	100.00%	100.00%
Contingency Coefficient		Value	p	
		0.456	0.000	

Source: Author's calculations

Table 20 - Logistic regression of line changing and satisfaction with adherence to scheduled timetable

	B	S.E.	Wald	df	Sig.	Exp(B)
Line change			12.299	2	0.002	
Line change (1)	0.460	0.615	0.558	1	0.455	1.583
Line change (2)	-3.466	1.173	8.736	1	0.003	0.031
Constant	1.386	0.500	7.687	1	0.006	4.000

Source: Author's calculations

Table 21 - Correlation between questions "How often do you use public transport during the week?", "Do you have to change several lines to get to your destination when using public transport services?" and satisfaction with adherence to the scheduled timetable

			Are you satisfied with adherence to scheduled timetable?		Total
			Satisfied	Dissatisfied	
1-2 times a week	Do you have to change several lines to get to your destination when using public transport services?	no	22.20%	30.00%	26.30%
		1 – 2	55.60%	70.00%	63.20%
		3 and more	22.20%	0.00%	10.50%
		Total	100.00%	100.00%	100.00%
Contingency Coefficient		Value		p	
		0,34		0,288	
3-5 times a week	Do you have to change several lines to get to your destination when using public transport services?	no	25.00%	36.10%	33.30%
		1 – 2	25.00%	61.10%	52.10%
		3 and more	50.00%	2.80%	14.60%
		Total	100.00%	100.00%	100.00%
Contingency Coefficient		Value		p	
		0.504		0.000	
Every day	Do you have to change several lines to get to your destination when using public transport services?	no	0.00%	12.50%	12.10%
		1 – 2	100.00%	87.50%	87.90%
		Total	100.00%	100.00%	100.00%
Contingency Coefficient		Value		p	
		0.066		0.706	

tion to the satisfaction with adherence to the scheduled timetable, while answers NO and 1 - 2 lines have no significant contribution.

It is evident that the quotient of likelihood is 0.031 which in this case also indicates an inverse relation. More precisely, the likelihood that the respondents who change more lines will be satisfied with adherence to the scheduled timetable decreases 0.031 times with the increase in the number of lines that have to be changed. The model explains between 19.4% and 29.7% variances and accurately classifies 85% of cases.

Since the previously obtained data could be seen as contradictory, additional crossing has been performed to check data again, and *Table 21* shows thus obtained significant correlation between the number of lines and the satisfaction with adherence to the scheduled timetable among respondents who use public transport three to five times a week. A conclusion can be reached that a decrease in the number of lines leads to a decrease in passenger satisfaction, in this subsample.

4. CONCLUSION

The research was conducted to determine the satisfaction of public transport users with the aim of improving their satisfaction. With the improvement of satisfaction of public transport users, the service providers also improve their business results. Towards better perception of passenger satisfaction with public transportation in Belgrade, the research was performed on a random sample of 100 respondents, through science - research questionnaire consisting of all user-relevant and theoretically verified determinants of the quality of public transport services.

Scientific research provided public transport operators with a good starting point for making proper mar-

keting strategies and marketing decisions aimed at improvement of public transport services. This scientific research also presents a good basis for conducting all further similar studies. The reason for this is that successful implementation of marketing strategies of public transport organizations in the city of Belgrade requires good continuous scientific studies. They can be used as the basis and their results can be compared with the help of this scientific research, which further highlights its importance and contribution.

Regarding the analysis of research results, it was noticed that the majority of passengers use public transport three to five times a week, as well as that demographic determinants in this paper cannot be related to the frequency of using public transport.

The first specific hypothesis: There is a significant correlation between demographic characteristics: gender, age, employment, and satisfaction with driver behaviour and attitude in public transport of the city of Belgrade, which were tested by finding correlation between these variables.

The average rating of driver behaviour and attitude of public transport operators is 1.79, indicating high dissatisfaction of passengers with this aspect. Additional analysis showed a significant correlation between demographic factors and rating of driver's behaviour and attitude, with the highest correlation noticed with variable of gender. Analysis of predictive power of these factors indicated that all factors can be considered as predictors of satisfaction with the behaviour and attitude of drivers, where the highest unique contribution was provided by variable of gender, which coincided with above-mentioned results.

One of the research assignments was to determine the factors that influence the respondents to opt for a particular transport operator. As the most important factor in choosing a service provider, the respondents singled out the comfort, and further analysis showed that there was no significant correlation between this variable and the demographic data.

Most respondents attached no importance to the information who owns the public transport services they are using, and stated that it is irrelevant whether they are private or state-owned. Establishing correlation between this variable with age and employment in the sub-sample of men, obtained a significant positive correlation of moderate intensity. A significant correlation was found in relation to the factors affecting the choice of service providers, where it was noticed that the users of state-owned transport operator regard timetable as the most important factor, while users of private transport operator opted for the lines. The biggest sub-sample obtained by such crossing comprises respondents who make their choice based on comfort of a vehicle and not on the fact who owns the transport operator.

Adherence to the scheduled timetable is rated as poor by the majority of respondents, with higher dissatisfaction manifested by men than women. Since significant correlation was not achieved between these two variables, it is concluded that half of the respondents cannot be set as a predictor of satisfaction with this aspect.

In order to determine the factors that may be related, they were correlated with other dependent variables. The analysis showed that a significant positive correlation confirms the frequency of using public transport, and thus the second specific hypothesis is proved. It has been concluded that more frequent use of public transport can be a predictor of dissatisfaction with adherence to the scheduled timetable. The obtained results indicate that the respondents who use public transport every day, meaning they are familiar with the scheduled timetable, express dissatisfaction with this aspect, which suggests the public transport providers should pay attention to adherence to the scheduled timetable since regular passengers notice any deviation.

Satisfaction with this aspect is also significantly positively correlated with the number of lines that respondents must change in order to reach the desired destination, where it can be concluded that decrease in the number of lines that respondents must change reduces satisfaction. Additional analyses found this statistically significant relation only in the sub-sample of respondents who use public transport three to five times a week. As an explanation of the obtained results, it is assumed that due to constant need to change the lines, the respondents are mostly familiar with timetable and adapted to it, and therefore do not express dissatisfaction. This assumption may serve as a hypothesis in a future research.

Most respondents have to change one or two lines to get to the desired destination, and additional analyses showed that gender can be correlated with this variable, while further analysis of its relation to age showed no significant correlation, although the correlation was observed in relation to employment, but only for a subsample of women.

The key research result of passenger satisfaction with public transport of the city of Belgrade is the fact that most regular passengers are the least satisfied with the services provided by transport operators, as well as that operators should increase the level of hospitality of their employees and introduce younger and more comfortable vehicles in order to improve the service quality and increase passenger satisfaction. Frequent cause of dissatisfaction might be non-adherence to the scheduled timetable.

Finally, it can be concluded that the initially formulated null hypothesis has been confirmed, i.e. passenger satisfaction with public transport of the city of Belgrade is determined by the quality of service pro-

vided by the transport operator, proven by high dissatisfaction of citizens who regularly use public transport with driver behaviour and attitude, lines, timetable, and other user-relative elements of public transport services.

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SAŽETAK

MARKETINŠKO ISTRAŽIVANJE SATISFAKCIJE KORISNIKA USLUGA JAVNOG PRIJEVOZA GRADA BEOGRADA

Cilj ovog rada je da se na bazi sprovedenog marketinškog istraživanja utvrdi razina satisfakcije korisnika usluga javnog prijevoza u pravcu donošenja kvalitetnijih marketing odluka na primjeru regiona grada Beograda. Osnovni zadatak jeste da testiramo hipoteze o postojanju značajnog utjecaja čimbenika poput kvalitetne isporuke usluga, odnosa i ponašanja zaposlenika (npr. vozača), adekvatnog informiranja, kvalitete vozila, mreže linija i vremenskog rasporeda vožnji na zadovoljstvo korisnika. Za tumačenje dobivenih rezultata i provjeru postavljenih hipoteza korišten je koeficijent korelacije i regresijska analiza. Empirijsko istraživanje je pokazalo da postoji značajna povezanost između spomenutih faktora i satisfakcije korisnika usluga javnog prijevoza. Na temelju dobivenih rezultata date su preporuke i smjernice za unapređenje i podizanje kvalitete usluga javnog prijevoza. Također, dato istraživanje može poslužiti kao osnova za daljnja istraživanja koja bi se orijentirala na vezu između zadovoljstva korisnika usluga i podgrupa unutar analiziranih čimbenika.

KLJUČNE REČI

marketinško istraživanje; marketinška strategija; elementi marketing miksa; javni prijevoz; korisnici usluga; satisfakcija;

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