#### ЭКОНОМИЧЕСКАЯ ПСИХОЛОГИЯ

# THE INVESTIGATION OF ATTITUDES TOWARDS ELECTRIC VEHICLES AMONG RUSSIAN CONSUMERS

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Summary. The article presents the results of a study of Russians consumers attitudes in relation to electric vehicles (electric scooters). The study involved 513 people of various ages living in Moscow and the Moscow region. The aim of the study was to study the structure of consumer attitudes towards such an innovative product for the Russian market as an electric scooter. Hypothesis: the attitudes of Russian consumers towards the electric scooter as a high-tech and innovative product for the Russian market and to electric transport as a whole are in the process of formation. Research method: survey and cluster analysis. The questionnaire was based on the classical three-component model of the structure of the attitude, which includes cognitive, affective and behavioral components. The data obtained as a result of the survey were subjected to cluster analysis. As a result, three groups of respondents were identified: «promising», *«conservative», «innovators»*, and each of the consumer groups has characteristic features of the cognitive, affective and behavioral components of the attitude, of which only one, the smallest group (3.3% of respondents), is characterized by the presence of a pronounced positive attitude towards electric scooters. It is concluded that the formation of attitudes towards electric scooters as an innovative product is at an early stage according to the theory of diffusion of innovations. The research results contribute to the study of the psychological mechanisms of consumer behavior, and are also of practical importance for the promotion of innovative products on the Russian market.

*Keywords:* attitude, structural components of attitude, consumer behavior, psychology of consumer behavior, consumer typology, diffusion of innovation theory.

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### INTRODUCTION1

The development of market relations in Russia stimulated the demand for research explaining the patterns of human behavior in the new economic reality. However, the study of psychological factors of people's economic behavior, in particular, the psychology of consumer behavior, has been fragmented for a long time. Marketing research was based on foreign models of consumer behavior that did not reflect the socio-cultural and psychological characteristics of the Russian consumer.

Despite the fact that consumption is one of the main social functions of modern man, for a long time consumer psychology has been on the periphery of researchers' attention. For Russia, this trend is the most typical, which is in particular due to the fact that consumer behavior has been beyond the attention of domestic social psychology for many years.

Most of the existing advertising, marketing, and PR technologies both in the West and in Russia considered the consumer as an object of influence that has its own laws, but does not have its own subjective activity. This approach has been applied in all branches of science and practice working with consumer behavior. But gradually the situation is changing, every year the interest of researchers in the influence of personality on all stages of the consumption process is growing - from the perception of a product to its disposal (Haliru, 2013; Vinokurov, 2012).

The attention of scientists to the psychological factors of consumer behavior, as well as the request for more heuristic models of consumer behavior on the part of market participants led to the formation of a separate field of knowledge – social psychology of consumption. The focus of attention of researchers working in this

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field is the study of the consumer decision-making process and the factors mediating consumer choice. The specificity of the psychological approach to the study of this issue lies in the understanding that the consumer decision is not always rational. The consumer does not necessarily choose the most advantageous option, since his decision is a complex psychological process involving motivation, emotions, cognitive processes of the subject (Folomeeva, 2012a). Researchers assign an increasing role to psychological phenomena and mental processes of personality in determining consumer behavior. The classical decision-making model of F. Kotler (Kotler, Keller, 2014) is being replaced by models of impulsive behavior (J. Beatty, H. Dittmar, S. Freese, J. Norfeldt). In fact, this means that the human psyche, which researchers working within the behavioral field, represented as a «black box», has a significant impact on human behavior, including consumer behavior.

Modern research is aimed at studying the patterns of consumer behavior of various social groups, the gender aspects of consumer preferences, the construction of concepts of motivation, attitudes, the study of the influence of personal factors and character traits on the attitude to a product or brand (Yoo, MacInnis, 2005; Oliver, 1999; Antonova, Patosha, 2017).

The rapid growth of social and technological changes leads to the fact that new products appear on the market, previously unknown to the Russian consumer. The use of new technological goods is changing the lifestyle of Russians, which we are observing, for example, in connection with the development of mobile communications. But in the field of vehicle usage, the changes are not so rapid, and the classic car is still the preferred vehicle for many decades. At the same time, in many countries people are already beginning to actively use electric vehicles, in relation to which Russian consumers still have a prejudice. The purpose of this research is to study the attitudes of Russians towards such a variety of electric vehicles as electric scooters, and to identify types of consumers who have different

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attitudes towards them. The electric scooter is one two-wheeled transport tool, which is powered by Li-batteries, and it looks like a motorcycle.

#### **Problem Statement**

The electric transport market in Russia is recognized by marketers as one of the intensively growing and promising. This market, of course, is under the influence of economic factors (for example, a decrease in the price of electric scooters led to a significant increase in their sales). At the same time, one of the most important factors hindering the development of the market is the lack of a social trend and subjective prejudices of Russian consumers in relation to this kind of transport (Khavtasi, 2018). The study of psychological factors of consumer demand for electric vehicles has not yet been conducted in Russia.

The study of consumer attitudes of Russians towards electric scooters will contribute to the development of an effective strategy for their introduction to the Russian market, the popularization of electric transport in Russia.

#### Literature review

Attitude as a factor of consumer behavior

Since the focus of our research is the attitude of the individual to the object (product), it seems appropriate to consider it as an attitude.

Traditionally, attitude is deemed as a stable organization of beliefs about an object or situation that predetermines the behavioral reaction of an individual. For example, D. Krech and co-authors define attitudes as long-term systems of positive and negative assessments, affective experiences and tendencies to act «for» or «against» in relation to social objects (Krech et al., 1969).

In general, in Western psychology the term attitude is actively used to denote such aspects of psychological reality as value and meaning; the fact of conscious

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experience of this relationship and its social character is emphasized. D. Myers, for example, believes that an attitude is a favorable or unfavorable evaluative reaction to something or someone, which is expressed in opinions, feelings and purposeful behavior (Myers, 2013).

Summarizing, we can conclude that it is customary to understand an attitude as a certain state of consciousness that determines readiness for a behavioral reaction based on the past experience of the subject.

Traditionally, three components are distinguished in the structure of attitude: cognitive, affective and behavioral (Shtalberg, Frey, 2001). The cognitive component includes judgments of an evaluative nature, opinions about objects. These opinions are formed when comparing the signs (attributes) of objects with human goals, as a result of which the qualities of usefulness-harmfulness, desirability-undesirability, etc. are attributed to objects. The affective component includes feelings about the object. Many researchers consider the affective component to be the core of attitude and associate with it the motivating function of the social attitude (Folomeeva, 2010a, 2010b).

The behavioral component is readiness for action in relation to an object. It should be noted that readiness for action is not identical to real behavior. Many studies emphasize that, despite the important role of attitude in the regulation of human behavior, it is also determined by external physical and social factors. For example, according to the theory of reasoned action by A. Aisen and M. Fishbein (Fishbein, Azen, 1970), attitude is the sum of ideas about the consequences of behavior actualization. A positive attitude towards behavior and its compliance with subjective norms determine the strength of the intention to act, which, in turn, affects behavior.

The associative-evaluative theory of social attitudes by R. Fazio (Fazio, 2007) considers attitudes as associations between an object and an evaluative attribute of a

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certain valence. The generalized assessment of an object is a set of associations with various attributes of different valence and is formed based on the totality of representations, affective experiences and behavioral information from past experience. The weaker the associations with an object in an individual's memory, the stronger the influence of external information (group norms, information from significant other objects, etc.) on the final attitude towards it. The general attitude will be positive – and therefore capable of influencing real behavior - when the individual has sufficiently strong associations of an object with the cognitive attributes of positive valence and with positive affective experiences. The attitude towards a new or insignificant object for an individual may not be represented in memory.

Consumer attitudes are a variant of social attitudes, the scope of which is consumption (Posypanova, 2012). Consumer attitudes often have a latent character, i.e. they are present in the person's representations in a collapsed form and can be actualized at the moment of meeting with the subject of the relationship. In consumer attitudes, the distance between attitude and real behavior is more pronounced. A person may have a clear attitude towards things that he/she will never buy (for example, preferred brands of expensive cars).

Consumer preferences are considered by some researchers as a kind of attitudes towards a product or service (Eagly, Chaiken, 1993). This approach makes it possible to overcome the reductionism of behaviorist models of consumer behavior that focus on such formal criteria as the frequency and regularity of purchases, the facts of recommendations and other behavioral signs. Behaviorists who consider attitude as behavioral readiness consider the behavioral component of attitude to be the most important. And if cognitive theories of the mid-XX-th century considered the cognitive component to be decisive, and, first of all, the number of cognitive components and their hierarchy, then modern attitude theories equally take into

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account the influence of cognitive and affective components on the psychological content of the attitude.

In particular, according to the associative theory, a generalized attitude is formed not only on the basis of cognitive conclusions about the preference or rejection of an object, but also on the basis of affective reactions that it causes, as well as on the basis of past behavior that is associated with it (Susanova, 2013).

As a kind of attitude, many researchers consider consumer loyalty, understood as the attitude of perceiving and expressing a positive opinion about a product or brand and denying negative information about it. Loyalty as an attitude also contains three components. The psychological content of the cognitive component consists of knowledge and perceptions related to a product/brand and reflecting its advantages. The affective component includes affective experiences which are pleasant to the individual related to a product/brand. The behavioral component of loyalty implies a tendency to regularly consume a product/brand. Despite the fact that loyalty, like other types of consumer attitudes, is not uniquely associated with the regularity of consumption of a product/brand, it contributes to the formation of long-term, positive consumer relations with the product/brand (Antonova, Patosha, 2017; Bagozzi et al., 2002).

Theoretical studies of psychological mechanisms of loyalty formation are devoted to those external and internal factors that influence this process. Strategies of consumer behavior, consumer motivation, and personality traits can be considered as internal factors determining the perception of products and brands (Antonova, Morozova, 2015). The external factors determining perception are, on the one hand, social norms and situational factors, and on the other hand, the subject image, i.e. a symbolic image of an inanimate object created in the process of subject-object interaction. In consumer psychology, multifactorial models of loyalty are being developed that reveal the psychological mechanisms of the formation of this attitude

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and explain its influence on consumer behavior (Antonova, Patosha, 2017; Folomeeva, 2012b; Vinokurov, 2012; etc.).

In this context, R. Oliver's attitude model is interesting (Oliver, 1999). Focusing on the main content components of attitude, Oliver identifies four successive stages of the formation of consumer loyalty: cognitive, affective, behavioral loyalty and loyalty to action. At the first stage, the consumer gets acquainted with a product and its attributes, evaluating it on the basis of existing knowledge and his own recent experience. If an individual constantly and consciously interacts with a product, then he not only gets more information about it, but also remembers the affective coloring of this experience. The second stage of loyalty development is affective. Here, an affective commitment to a product arises as a result of repeated positive experience of interacting with it. Affect is the most important part of the setup, because it is much more difficult to reject the experienced emotion than any arguments and judgments about the product. The last stage of the development of consumer loyalty, according to Oliver (this stage distinguishes Oliver's theory from many other attitude theories), is loyalty to action. Here, the motive for action formed at the previous stage is transformed into readiness for action. This transition is accompanied by an additional attitude to overcome obstacles that interfere with the action.

The subject of our study is consumer attitudes towards an innovative product for the Russian market, and in this context, the staging of the process of forming consumer preferences is logical, since it allows us to analyze the psychological reasons for the difficulty of introducing electric transport to the Russian market.

Analyzing the attitude of consumers to the developing market of high-tech goods in Russia, which undoubtedly includes electric scooters, T.V. Folomeeva also notes the stadial nature of the process of forming an attitude. The importance of cognitive, affective and behavioral components of attitude changes as the market

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develops. At the early stages of introducing a product to the market, the cognitive component plays a leading role. As the product moves into the category of consumer goods, the role of the affective component increases. However, when choosing a specific offer in the market of high-tech services, the consumer relies more on rational arguments (Folomeeva, 2012 (b)). So T.V. Folomeeva comes to the conclusion that different levels of consumer decision-making - from strategic choice to the choice of specific products - correspond to different consumer attitudes. For our study concerning the attitudes of Russian consumers towards electric scooters, the second level of consumer decision-making, highlighted by the researcher, is interesting - categorical. At this level, the consumer makes a choice from subjectively competing categories of goods. The needs that these goods satisfy can be completely different, the choice is determined by the consumer's attitude to the product, by how expedient he considers the purchase. We can assume that one of the reasons for the low-intensity development of the electric transport market in Russia is that the subject image of this product category is still being formed. The complexity of this process is determined by the technical complexity of the goods, which prevents the formation of cognitive and affective components of the attitude towards electric transport and especially towards electric scooters.

Based on the theoretical analysis, we can draw the following conclusions:

- 1. Attitude is understood by us as a certain state of consciousness that determines readiness for a behavioral reaction based on the subject's past experience. The use of this psychological construct when analyzing the prospects of a product or brand on the market helps to identify the characteristics of consumers' perception of this product or brand.
- 2. The process of perception of a subject image or brand image can be considered as the process of forming the consumer's attitude to this product or brand. This process can be influenced by modeling situations of active consumer interaction

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with a product or brand, in particular through such marketing technology as merchandising.

3. Consumer loyalty as an attitude, the psychological content of which consists of strong associations of an object with cognitive attributes of positive valence and with positive affective experiences, is formed in stages from acquaintance with the product/brand to the appearance of a tendency to its regular consumption.

Hypothesis: given the multilevel nature of the consumer decision-making process, it can be assumed that the attitudes of Russian consumers towards the electric scooter as a high-tech and innovative product for the Russian market and to electric transport as a whole are in the process of formation.

#### **METHODOLOGY**

This study is the first stage of a project dedicated to the research of psychological factors of preference for Electric Vehicles by Russian Consumers.

# Sampling

The study involved 513 people living in Moscow and the Moscow region. The following characteristics of the sample were taken into account: gender (261 men and 252 women), age (16-60 years old, with 95.7% of respondents being under 50 years old), education (full secondary, college, incomplete higher education, higher education), income level. The survey was conducted using the Internet, mainly remotely. Mostly young people took part in the study, since the problem of using electric scooters is more urgent for them.

#### Method

To study consumer attitudes, we have developed a special questionnaire. When compiling the questionnaire, we relied on the classical attitude structure: the

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cognitive component (how well respondents are familiar with such a type of twowheeled transport as an electric scooter), the affective component (what attributes of an electric scooter respondents like and give this product a subjective value, what consumer risks they are concerned about in connection with the possibility of purchasing an electric scooter) and the behavioral component (willingness to buy an electric scooter).

#### RESULTS

The sample is characterized by an average level of awareness about electric scooters: 32.4% of respondents stated that they do not know anything about electric scooters, and half of the respondents (50.7%) replied that they know little about them. The main sources of information about electric scooters are online media (39%) and social networks (40.7%). For a significant part of respondents (36.1%), the use of an electric scooter embodies convenience.

A significant part of the respondents (42.7%) feel their contribution to the environment when driving two-wheeled vehicles. The most attractive attribute of an electric scooter from the proposed list turned out to be ease of operation (it is very easy to drive an electric scooter) – it is able to inspire 49.5% of respondents to buy. The least interesting attribute of an electric scooter for respondents is its attractive appearance: it inspires only 27.9% of respondents. To the greatest extent, respondents are concerned about the impossibility to use an electric scooter in winter, 59.3% of respondents reported this. The problem of parking spaces turned out to be absolutely irrelevant: it worries 0.6% of respondents.

Only 24% of respondents plan to purchase an electric scooter in the near future, another 30.2% do not exclude such a possibility in the future. Half of the respondents (50.1%) plan to use an electric scooter for everyday driving, and only

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15.8% consider using an electric scooter for business. At the same time, 38% of respondents plan to make short trips of 5-10 km on an electric scooter.

To identify the psychological content of the structural components of the attitude of Russian consumers towards electric scooters, a hierarchical cluster analysis was carried out, in which the cognitive, affective and behavioral components of respondents' attitudes towards electric scooters served as variables. Cluster analysis was carried out by the method of average coupling, interval data: the square of the Euclidean distance. The analysis was carried out by SPSS.

As a result of the analysis, three clusters were identified, which can be interpreted as three groups of consumers.

Table 1
Results of cluster analysis (N=513)

Cluster		Frequency	Percentage %		Accumulated
				percentage %	percentage %
Valid	1	258	50.3	50.3	50.3
	2	238	46.4	46.4	96.7
	3	17	3.3	3.3	100.0
	sum	513	100.0	100.0	

#### **DISCUSSION**

The results of the study demonstrated poor awareness of Russian consumers about electric vehicles, and, in particular, about electric scooters. Russians have little idea of the advantages of electric vehicles and the possibilities of their use in Russia. Perhaps this is due to the specifics of climatic conditions in Russia, a significant contribution is also made by the lack of relevant information in the Russian media.

The study identified three clusters of Russian consumers in relation to electric vehicles. The first and second clusters are approximately equal in terms of fullness (258 and 238 people, respectively) and are similar in many key indicators:

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in both clusters, 43% of respondents are familiar with an electric scooter;

- the range of emotions felt by respondents in both clusters fully corresponds to the sample averages: 21% feel happiness, 31% inspiration and 42% their contribution to the environment;
- the attractiveness of such attributes of an electric scooter as ease of operation, attractive appearance and riding without a driving license is the same for both clusters and corresponds to the average values in the sample. The most attractive attribute is the ease of operation.

However, there are significant differences between these clusters.

The first cluster united consumers for whom an electric scooter represents fashion, freedom or convenience. This is a broader view than the view of a simple layman. This is probably why the majority of those respondents who are considering buying an electric scooter for business are concentrated in the first cluster. These consumers are concerned about the assembly quality of electric scooters and how to maintain them, which indicates their thorough approach to the purchase and use of this mode of transport. Such an attribute of an electric scooter as environmental friendliness is more significant for them than for representatives of other clusters. Respondents in the first cluster express their purchase plans more clearly: there are fewer undecided among them. Based on these characteristics, we called this group of consumers *«promising»*.

The second cluster. Consumers who are in the second cluster see an element of comfort in an electric scooter. They are planning to purchase an electric scooter for personal purposes, mainly for everyday riding. First of all, they are concerned about the following questions: where to store the electric scooter and where to charge it. Absolutely not concerned about the assembly quality. Respondents in the second cluster do not plan to buy an electric scooter, at least in the near future. This group of respondents can be called *«conservative»*.

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The third cluster is the least filled, it united only 3.3% of respondents. These are people who are familiar with electric scooters and are planning to buy them. They received information about electric scooters from online media and social networks, less important, but still significant channel for obtaining information from this group of respondents was friends. They consider the most attractive attribute of an electric scooter to be ease of operation. Their distinctive feature is also their willingness to make fairly long trips on an electric scooter – more than 20 km. The electric scooter represents fashion and freedom for the respondents in the third cluster. Summarizing these characteristics, we called this group of consumers *«innovators»*.

Significant correlations of socio-demographic characteristics and belonging to a particular cluster were not found. In all three clusters, men and women are approximately equally divided, all age categories are represented (respondents over 50 years old were not included in the third cluster), and all levels of education are found.

The identified typology of consumers can be correlated with the typology of E. Rogers by the criterion of propensity to adopt innovations. *«Innovators»* in our typology correlate with «innovators» in Rogers' typology both in quantitative and qualitative characteristics (Rogers has 2.5% of the population). *«Promising»* in our typology are early followers and early majority according to Rogers (47.5% in total), and *«conservative»* correspond to the types of «late majority» and «laggards» according to Rogers (50% in total). Thus, we can conclude that: electric vehicles are still an innovation for Russia, and Russian consumers are at the very beginning of the curve of «diffusion of innovation» and acceptance of such vehicles as a possible object of consumption (Rogers, 2010).

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#### CONCLUSION

- 1. The level of awareness of respondents about electric scooters is insufficient for the emergence of an affective commitment to this type of transport.
- 2. Russian consumers tend to consider the electric scooter more as an element of comfort than as a fashion accessory.
- 3. The low level of associations of an electric scooter with the cognitive attributes of positive valence and positive affective experiences determines a low level of behavioral activity of respondents in relation to this type of transport.
- 4. Three clusters (types of consumers) are identified according to their attitude towards electric scooters: *«promising»*, *«conservative»*, *«innovators»*. Each of the consumer groups has characteristic features of the cognitive, affective and behavioral components of the attitude.
- 5. Potential consumers of electric scooters can be *«innovators»*, in the future you can also focus on *«promising»* ones. *«Conservatives»* are the least likely to be the target audience of this market in the near future.
- 6. To build a further marketing strategy, the following characteristics of *«innovators»* should be taken into account people who are most likely to belong to the target audience: they perceive the electric scooter primarily as a fashion accessory symbolizing freedom, allowing them to lead an active lifestyle characteristic of this category of consumers. In the future, with the expansion of the target audience and the inclusion of people of the first group (*«promising»*), it is possible to turn electric scooters from a fashionable toy into an attribute of everyday life, for this it is important to emphasize its environmental friendliness.

Thus, we can conclude that the introduction of electric scooters to the Russian market is at an initial stage. The percentage of *«innovators»* (3.3%) in our study turned out to be slightly higher than in the E. Rogers model of diffusion of innovations, probably due to the fact that respondents living in Moscow and the

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Moscow region participated in the study. Russian consumers do not yet see any other possibility of using electric scooters, apart from personal use. Using them to optimize or create innovative business lines seems to be an important resource, which is still very poorly used for the introduction of electric scooters to the Russian market.

It seems that for a more active distribution of electric scooters in the Russian market, a large-scale information campaign is needed, taking into account the peculiarities of economic consciousness and consumer behavior of Russians.

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The investigation of attitudes towards electric vehicles among russian consumers

## ИССЛЕДОВАНИЕ ОТНОШЕНИЯ РОССИЙСКИХ ПОТРЕБИТЕЛЕЙ К ЭЛЕКТРОМОБИЛЯМ

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Анномация. В статье приводятся результаты исследования потребительских аттитюдов россиян в отношении электрических транспортных средств (электроскутеров). В исследовании приняли участие 513 человек различного возраста, проживающие в г. Москве и Московской области. Целью исследования являлось изучение структуры потребительского аттитюда к такому инновационному для российского рынка продукту, как электроскутер. Гипотеза: аттитюды российских потребителей к электроскутеру как к высокотехнологичному и инновационному для российского рынка товару и к электротранспорту в целом находятся в стадии формирования. Метод исследования: опрос и кластерный анализ. В основу опросника была положена классическая трехкомпонентная модель структуры аттитюда, включающая когнитивный, эмоциональный и конативный компоненты. Данные, полученные в результате опроса, были подвергнуты кластерному анализу. В итоге были выделены три группы респондентов: «перспективные», «консервативные», «новаторы», причем каждой из потребительских групп свойственны особенности когнитивного, аффективного и поведенческого компонентов отношения, из которых только одна, наименьшая группа (3,3% респондентов), характеризуется наличием выраженного позитивного аттитюда к электроскутерам. Делается вывод о том, что формирование аттитюдов к электроскутерам как инновационному продукту находится в начальной стадии согласно теории диффузии инноваций. Результаты исследования способствуют изучению психологических механизмов потребительского поведения, а также имеют практическое значение для продвижения инновационной продукции на российский рынок.

*Ключевые слова:* аттитюд, структурные компоненты аттитюда, потребительское поведение, психология потребительского поведения, типология потребителей, теория диффузии инноваций.