

CONSUMER BEHAVIOUR ANALYSIS IN THE VIDEO GAMES MARKET

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Abstract: *This paper aims to evaluate the socio-economic impact of video games on consumers, but also the implications they bring as a result of the interaction with this industry regarding the experience received in video games, but also the psychological effects that can be manifested in this industry. The aim of the research is to gather information regarding consumer motivation and consumer expectations, and to critically analyse the possibilities to manage the experience offered and satisfaction received with video game consumption, taking into account side effects that may appear before, during or after consumption.*

Key words: *video games, interactive entertainment, motivations, expectations and consumption behaviour.*

1. Introduction

Over time, the need for entertainment has grown considerably globally. This evolution can be attributed to the average standard of living and the way the world has evolved. Thereby, increasing the competitiveness of a company operating in the entertainment industry represents a future investment with a significant degree of return.

The paper regards the quantitative research on video game consumers because they represent the most important component of the external environment. Thus, the research aims to indirectly highlight the possibilities for improvement, as well as the level of satisfaction among consumers, taking into account the psychological effects that may appear before, during or after consumption. The addressed subjects are the desire for customization regarding certain elements included within video games and the experience offered to consumers. The research also aims to identify the intensity of the desire to customize the key elements, but not the specific direction of the customization, as this differs by video game category and subject matter. In this respect, quantitative marketing research can lay the groundwork for future research for each topic addressed and video game category analysed. Thus, developers can identify the best decisions and strategies that can be used to maximize consumer satisfaction.

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The paper is structured into five sections: the review of the specialized literature, the research methodology, followed by the presentation of the research results and the related discussions, a series of conclusions and proposals based on the critical analysis of the research results, and, in the final part, the limits of the research and future research possibilities.

2. Literature Review

The term "entertainment" has been defined through a considerable number of explanations and definitions over the past five hundred years. Currently, the most relevant definitions relate entertainment to consumer interest, amusement and satisfaction. This concept is considered a humanistic one because it involves an emotional response through the gratification of a human sensor type and concerns people's desire and/or need to obtain certain sensory inputs (sight, hearing, taste, touch and smell) that are perceived as attractive or captivating. Moreover, the emotional response is manifested, as a rule, in the form of a psychological effect on the consumer, be it curiosity, happiness, ecstasy, motivation, sadness etc. Also, the psychological effects can be observed through physiological reactions (increased pulse, high blood pressure etc.), but also physical ones, such as smiling, laughing, raising eyebrows, frowning, startling etc. (Moss, 2015). However, the psychological effect is not the only form of manifestation of the emotional response, and therefore it is not the only objective achieved through this industry.

Entertainment includes four main components (psychological, cognitive, affective and behavioural) that can be present simultaneously in an interaction with this industry. The four main components represent ways in which changes can manifest on the consumer, such as mood (psychological effect). The cognitive component considers situations in which the consumer acquires a new information and/or skill, which he did not have before the consumption of entertainment. The affective one concerns the modification of certain feelings and perspectives that the consumer manifests for a certain subject, field or for a certain category of people or living things, such as affection towards animals mistreated by their owners. The behavioural reaction represents the modification of a type of behaviour or habits that the consumer exhibits before consumption. For example, starting to recycle used cooking oil after watching a movie in which there is at least one scene about the impact of pollution on the environment, even if the movie was created with a different purpose (i.e.: entertainment) (Bryant & Vorderer, 2013).

2.1. Delimitation of the analysed segment

The entertainment industry can be dichotomized into interactive and non-interactive entertainment. The difference between the two lies in the level of control that the consumer can exert over an experience. More specifically, the lack of interaction presents a higher level of rest and relaxation because the consumer can enjoy an experience listening to a song or watching the action unfold when reading a book or watching a movie, series or documentary.

At the opposite pole, the existence of interaction can imply a higher level of satisfaction and excitement because the consumer acquires a predefined level of control over the action (video games, board games etc.). While the amount of information in the case of non-interactive entertainment is a fixed one, as interactivity allows players to select the desired information. Moreover, players benefit from active participation in the decision-making process within certain games. An example of this is given by the situation where the consumer can view a landscape from any angle he wants (in the case of 3D games). While the action in a book is already written, and the scenes of a movie or series are already filmed, the consumer does not have the opportunity to discover additional information or satisfy additional curiosities.

2.2. Managing consumer interactivity and experience

If a game provides too much information, it is deprived of the benefits of suspense, and players may show little interest in the subject. Conversely, too little information can generate confusion and misunderstanding of the topic, thus generating an equally low interest, but this time for the opposite reason (Halim et al., 2010).

Games that are devoid of the decision-making process over the unfolding of the action tend towards a non-interactive entertainment and indirectly compete with the fiction and film industry, remaining only with the competitive advantage generated by selecting information and following the action from the desired angle. However, the cases in which the diversity of the decision-making process becomes a stress factor, which causes overthinking, are few. Consumers are attracted to this diversity because they can make their own choices through an increased level of control over action and benefit from a personalized experience that can be considered a simulation of reality (Csikszentmihalyi, 1990).

Beside the simple entertainment activity, video games can improve certain cognitive abilities because video game players can outperform non-gamers on a variety of perceptual and cognitive measures (Boot et al., 2011). Also, gamers can do better in terms of change detection tasks due to differences in search patterns between gamers and non-gamers (Clark et al., 2011).

2.3. Maintaining interactivity between consumers and experience

Regardless of the amount of information available or the extent to which consumers can participate in the decision-making process, video games have a specific element that sets them apart from non-interactive entertainment, namely missions. If the tasks to be performed by the player are too simple and/or repetitive, the game can be considered dull and unappealing. Conversely, tasks with a high level of difficulty and low correlation between them can become a stressor that can generate frustration with repeated failures. To eliminate the risks generated by the difficulty of tasks, video game developers offer the possibility of choosing the level of difficulty. In this sense, controlling the action and gradually mastering the game is considered the main source of satisfaction (Csikszentmihalyi, 2014).

As a rule, increasing the difficulty also implies an increase in the quantity or quality of

the virtual rewards. However, an exception to this possibility of choice is games with a specific purpose, in which the choice of difficulty level would be in contradiction with the main purpose of the game. For example, games that are based on the depth of a story present a lower level of effort to complete the tasks so as not to distract the player from the original goal. A different example is survival games because they focus on the difficulty of surviving in specific situations, and a lower level of difficulty would lead to deviating from the main purpose, and the product would no longer fulfil its core feature (Federoff, 2002).

2.4. Managing consumer enthusiasm and motivation

People resort to this type of entertainment for various reasons such as relaxation, passing time and excitement. A proper management of the factors that determine the level of interactivity can lead to obtaining a state of flow or deepening for consumers (State of Flow). "State of flow" is a state of concentration so deep that it causes an absolute immersion in the activity carried out. In this sense, consumer satisfaction is carefully pursued and is not left to the consumer or to chance (Csikszentmihalyi, 1990).

In addition to the primary factors that determine how the action unfolds, an equally important factor is the one related to the essence of the game, namely fantasy and curiosity about it. In this respect, the distance from reality is pursued in order to surprise consumers with novelty elements that will arouse their interest and enthusiasm towards the virtual environment (Murray and Maher, 2011). The ways of managing consumer enthusiasm and motivation towards this component of the entertainment industry are similar to the "Yerkes-Dodson" law. Thus, the analysis of an experience, which belongs to interactive entertainment, through the framework of this law, highlights a mathematical explanation with a graphic representation of consumer satisfaction.

2.5. "Yerkes-Dodson" Law

Few psychological discoveries have been promoted to the rank of law. Researchers Robert M. Yerkes and John D. Dodson were able to do this in 1908. At its origins, the law formulated a theory that an inverted U-shaped relationship exists regarding the correlation between the strength of the stimulus and the rapidity of the formation of physical reflexes depending on the difficulty of the tasks. (Hanoch and Vitouch, 2004) Researchers used electric shocks to train rats, expecting that the intensity of the electric shock would be directly proportional to the speed of response and learning. But, contrary to expectations, the researchers found that a high-intensity electric shock is just as ineffective as a low-intensity one, and the optimal intensity level of the electric shock is a medium one, varying over a very narrow range of intensity. Regardless of whether the distance from the optimum range is one that involves an increase in the intensity of the electric shock or one that involves a decrease in it, the result is the same, namely that the distance shows the decrease in efficiency as the distance between the intensity and the optimum range is greater (Yerkes and Dodson, 1908). In this case, it can be concluded that rejecting a tested hypothesis is as important as accepting it, because its mechanics and effects are identified.

In 1950, the foundations of this law were used and tested on an emotional level to observe the manifestation of the psychological effects determined by different factors. The law analyses the implications that the levels of certain factors (stress, joy etc.) have on people participating in an action or performing a task (Hanoch and Vitouch, 2004).

The essence of this law can be represented by means of a graph showing the “Gauss Bell”. The abscissa shows the level of stress, and the ordinate measures the level of efficiency regarding the respective action.

In the case of performing a task, the law explains that a low level of stress causes a low efficiency on a task because the action does not present a significant enough level of interest and will therefore be treated as such. At the opposite pole, a high level of stress generates restrictions on efficiency because it generates deficiencies in concentration and delays in the decision-making process. For this reason, an optimal level of stress (environment) determines a considerable level of interest, but without generating restrictions on the level of efficiency or hesitations and delays on the decision-making process (Hanoch and Vitouch, 2004).

3. Quantitative Marketing Research Methodology

To carry out the quantitative marketing research aimed at the video game consumers, a survey was used, and the questionnaire served as a data collection tool. The latter was distributed in electronic format, in the online environment, being drafted in Google Forms. The questionnaire includes ten questions, of which, question number 3 includes eight components, and question number 4 includes twelve analysed elements. Also, questions three and four are made in the form of semantic differentials with five levels of preference to be able to identify both the desire for customization and the intensity of this desire. The data collection period was between April 17, 2022, 10:36 a.m. and May 22, 2022, 11:40 a.m.

3.1. Objectives and assumptions

The objectives of the quantitative marketing research are:

- 1) To identify the main motivations for consumption;
- 2) To highlight the lowest consumption motivation;
- 3) To determine the implications of consumption motivation on preferred devices;
- 4) To determine the implications of consumption motivation on preferred video game categories.

The hypotheses of quantitative marketing research are:

- 1) The first four consumption motivations are: distance from reality, excitement, relaxation and socialization;
- 2) Consumers are not motivated by the possibility of streaming;
- 3) Consumers motivated by relaxation prefer consumption on the phone to a greater extent compared to the other devices because consumption is more comfortable;
- 4) Online video game consumers desire the possibility of character and/or vehicle customization more than others.

3.2. Determining the Sample Size

The sample size is calculated as n , assuming a confidence level of 90%, with a margin of error of $\pm 5\%$, to have a value of $z = 1.65$. Men are three times more likely to purchase video games (75%) compared to women (25%), and they are usually the target audience for most promotional campaigns (Yanev, 2022). Taking into account the fact that over time there has been an increasing evolution of the share of women in the total consumers, this share has been supplemented by a percentage of 5% for the quantitative marketing research. Thus, the maximum value of the standard deviation is considered for the case where the share of men is approximately 70%, and that of women is approximately 30% of the total analysed sample. Thus, $p = 70\%$ and $q = 30\%$ and the following formula is used: n = sample size; p = percentage of male responses in total cases; z^2 = the square of the Z coefficient, corresponding to the confidence level; $q - 1 - p$ = percentage of female responses in total cases; E^2 = the square of the allowed error expressed as a percentage.

$$N = \frac{z^2 \times p \times q}{E^2} = \frac{(1,65)^2 \times 70 \times 30}{5^2} = \frac{2,7225 \times 2100}{25} = \frac{5717,25}{25} = 228,69$$

Bearing in mind that, in Romania, the number of video game consumers was approximately 7.9 million consumers in 2020 (Romania Journal, 2021), and the share of console video game consumers was 15.5% (Statista, 2021), i.e., 1.2 million consumers, the analysed sample represents less than 5% (1.85%) of the researched population and is not an oversized one, considering the sample of 229 people, with a distribution of gender of about 70% male and 30% female.

3.3. Sample Description

Thus, the quantitative marketing research was developed on a sample of 229 respondents, of which, five answers were considered unrepresentative and were eliminated from the research, the analysed sample being 224 respondents. The analysed sample shows a gender distribution consisting of 157 males, i.e., 70.1% of the sample, and 67 females, i.e., 29.9% of the sample.

4. Research Results

The first three questions of the questionnaire are to identify the consumption preferences. More specifically, the first question highlights the devices used for video game consumption. The second question indicates the types of video games preferred by the respondents. And the third question identifies the consumption motivation.

The following twelve questions represent the quintessence of the qualitative research because they highlight the desire for personalization of the video game experience. The questionnaire continues with two factual questions on the volume of consumption and ends with four identification questions.

4.1. Consumption motivation

The question that identifies consumption motivations is a semantic differential with five levels to be able to identify both the motivation and its intensity. The first four highest scores found are the "interaction with the story" motivation, followed by "relaxation", "entertainment" and "enthusiasm", and the lowest average found is the "streaming" motivation. In this respect, the first two objectives are met and the sample serves the purpose of the research because the respondents are not professionals who use the consumption of video games as a source of income (streaming), but rather they are entertainment-seeking consumers who want to relax interactively or benefit from a simulating experience of reality or away from reality. While the secondary hypothesis was fully validated, the first hypothesis was only 75% validated because only three out of four motivations were accurately estimated and socialization is not a significant consumption motivation, instead one may find the simple desire for entertainment. The analysis continues with the identification of specific elements regarding the main consumption motivation generated by "interaction with the story".

4.2. Implications of consumption motivation

Of the top four consumption motivations, the analysis of differences between means indicates that consumption motivation does not show significant differences in preferred devices for playing video games or personalization preferences. Thus, the third hypothesis is rejected. However, the variables interaction with the story and enthusiasm shows significant differences regarding the consumption of video games in which the controlled character uses firearms. More specifically, respondents who are motivated by excitement and the desire to interact with a fictional story are not interested in consuming video games that feature military, military-strategic, or precision themes. Otherwise, the respondents determined by these four motivations, consume all other types of video games to the same extent, without any significant differences.

4.3. Video game personalization preferences

The analysis of customization preferences, according to the type of video game preferred and played, highlights the fact that, in ten out of eleven video game types, there are no significant differences regarding the desire for customization, and respondents of each video game category want customization to the same extent. The only exception is the category of online role-playing games. Thus, the last hypothesis is validated because, within this category, the respondents who do not play this type of games want the possibility of customization to a greater extent than those from the opposite pole. For this reason, two hypotheses can be formulated for those who are active in this category and one hypothesis for those who do not play this type of games.

In the first hypothesis, respondents who are familiar with this category of games may be satisfied with the customization possibilities of the character and, for this reason, do not prefer to change the level of customization. In the secondary hypothesis, respondents who have experience with this category do not pay attention to characters

and focus more on the virtual environment and all the experiences it has to offer. In the third hypothesis, respondents who have not interacted with this category may have different expectations of the main experience that games of this type have to offer.

A limitation of this research is that the analysis identifies domain and personalization preferences, but not a direction. This is because the complexity of identifying the direction of personalization requires separate research for each video game category or individual personalization possibility.

5. Conclusions

Researching the theoretical aspects of the interactive entertainment industry has led to the awareness of certain psychological effects and implications that can occur on video game consumers. Moreover, psychological effects and phenomena can also manifest outside of this industry, generating cognitive, affective and behavioural implications on consumers.

Moreover, being an industry that satisfies a psychological need, the management of policies and strategies applied to this industry must be correlated with the main phenomena manifested at a psychological level. Regarding this, we can adapt the "Yerkes-Dodson" law for the interactive entertainment industry. More specifically, the law can describe how a low level of excitement generated by an experience, for the purpose of entertainment, causes a low consumer satisfaction because the experience is not sufficiently interesting and is considered boring. In this case, the experience offered may fail to fulfil its role as a component of the entertainment industry. One may be also be tempted to believe that a maximum level of excitement cannot have undesirable effects. However, the reality differs, as a high level of excitement can generate a high level of expectations of the action within the experience. In this respect, if the consumer expectations exceed the result provided by the experience, it generates dissatisfaction. Thus, the discrepancy between expectations and reality is directly proportional to the level of dissatisfaction met by the consumer.

The quantitative marketing research reveals that there are no significant differences in personalization desires based on consumers' preferred video game category. For this reason, it can be considered that the proper management of the "Yerkes-Dodson" law is beneficial to this industry because there are considerable desires regarding the customization of the experience received in all categories of video games.

6. Proposals

The proposal aims to increase the customization possibilities of certain elements within video games, depending on the category of the video game. Also, increasing the possibilities of personalization can lead to obtaining additional income. For example, creating a vehicle in a video game involves writing code that determines the colour of the car from the existing range of colours. Thus, offering the possibility to customize certain colours involves minimal or even no costs for the developers. Developers may, however, offer certain features free of charge to attract consumers and may charge a

price for other customization features. In this respect, the factor of the number of beneficiary persons is suggested. Thus, customization may be free if only the consumer can notice the customization, and it may be charged in the case of online games where friends and other consumers can also notice the difference because consumers may feel additional satisfaction from the desire for differences or exposure of certain traits.

According to the "Yerkes-Dodson" law, there may be undesirable effects within too low or too high values in certain situations. The specific elements that differentiate interactive from non-interactive entertainment are the completion of missions and the control of the unfolding of the action. To avoid too low or too high levels of difficulty in this context, video game developers offer the possibility to choose the level of difficulty. However, most video games do not have a description of the difficulty level, and this fact can generate different expectations from the experience received. For this reason, the second proposal for developers is to present brief descriptions of the difficulty levels of video games to further reduce the discrepancy between expectations and reality that can generate dissatisfaction on the consumption experience.

7. The Economic-Financial Implications for the Company

The proposals involve minimal financial costs because programming a game's features and presenting difficulty choices are already part of the production process. For this reason, providing the possibility of customization and adding a short description of the difficulty levels does not represent the initiation of new processes, but only the addition of existing ones. The application of proposals decreases the risk of discrepancy between expectations and reality and increases the degree of satisfaction from consumption, which can increase the level of consumer loyalty.

8. Research Limits

When the goal is to complete a task, such as the development of a scientific research, it is important to be aware of the skills, for their effective use. Equally important is the definition of the current limits of skills, because knowing these limits allows the possibility of being overcome.

The limits of the quantitative marketing research are both internal limits and limits generated by external factors. The internal limitation was generated by the analysed subject. The research highlights the elements that consumers want to personalize and the intensity of this desire according to a five-level semantic differential. It also does not indicate the direction of personalization preference. For example, the research exposes the extent to which consumers desire to alter the level of realism or fiction of the story, but does not illustrate whether this desire tends toward more realism or more fiction. This limitation of the approach was considered from the beginning because indicating the direction requires additional research for each element and game type.

The limitation determined by the external factors consists of the quantity and quality of the answers received because the sampling method and the sample volume do not ensure a level of representativeness to be able to extrapolate the answers. From the

point of view of their quality, some of the respondents did not pay enough attention to the question regarding the frequency of consumption and, instead of specifying the daily volume of consumption, some specified the weekly volume. Thus, respondents who answered with a frequency of more than 24 hours for weekend day or weekday consumption may have their answer divided by the day number of the week portion (2 or 5). However, some of the respondents who present a frequency of 20 hours (for example) cannot indicate whether that consumption frequency is daily or weekly.

9. Future Research Possibilities

The first future research direction consists in researching the desired direction of personalization according to the analysed element and the category of the video game.

The second future direction of research involves testing the propositions of this research on a small sample of respondents to verify at individual level the difference in the effectiveness of a financial promotion campaign versus a social promotion campaign. Also, testing propositions at individual level can facilitate understanding of the effects that personalization has on consumers.

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