

ПРИДНІПРОВСЬКА ДЕРЖАВНА АКАДЕМІЯ  
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## ANALYSIS OF FACTORS OF ATTRACTING AND RETAINING THE ATTENTION OF USERS IN THE INTERNET ENVIRONMENT

### АНАЛІЗ ФАКТОРІВ ЗАЛУЧЕННЯ ТА ЗБЕРЕЖЕННЯ УВАГИ КОРИСТУВАЧІВ В ІНТЕРНЕТ-СЕРЕДОВИЩІ

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*The article specifies the essence of the processes of attracting and retaining the attention of users when interacting with a multimedia product on the Internet. The interrelation of volumes of the information and attention of users is grounded. The elements of the information structure of a multimedia product are generalized. Classified factors of attracting and retaining the attention of users in the Internet environment.*

**Keywords:** factors, attention, Internet environment, multimedia product, attention economy.

*У статті уточнено сутність процесів залучення і утримання уваги користувачів при взаємодії з мультимедійним продуктом в Інтернеті. Обґрунтовано взаємозв'язок обсягів інформації та уваги користувачів. Узагальнено елементи інформаційної структури мультимедійного продукту. Класифіковано чинники залучення і утримання уваги користувачів в Інтернет середовищі.*

**Ключові слова:** чинники, увага, Інтернет середовище, мультимедійний продукт, економіка уваги.

*В статье уточнена сущность процессов привлечения и удержания внимания пользователей при взаимодействии с мультимедийным продуктом в интернет. Обоснована взаимосвязь объемов информации и внимания пользователей. Обобщены элементы информационной структуры мультимедийного продукта. Классифицированы факторы привлечения и удержания внимания пользователей в интернет среде.*

**Ключевые слова:** факторы, внимание, интернет среда, мультимедийный продукт, экономика внимания.

**Formulation of the problem.** Due to the development of multimedia technologies, as well as the strengthening of the importance of communications on the Internet, an urgent problem for modern enterprises is attracting and retaining the attention of users as potential consumers of products. The solution to this problem lies in the field of a modern approach to information management, such as the economics of attention. Within the framework of this approach, human attention is regarded as a scarce commodity. As the information flows of modern society are too saturated, attention becomes a limiting factor in the process of information consumption. As noted by Crawford M. [1], attention is used to filter out the most important information by the human brain from a large pool of information surrounding

a person in the digital age. An important task of the study is to generalize factors of attracting and retaining the attention of users when interacting with a multimedia product. The most significant group of factors will be managed factors, which will allow developers of multimedia products to manage the impressions of the target audience.

**Analysis of the latest publications.** Analysis of the modern scientific literature allows us to distinguish two groups of studies within the framework of the problem under study. The first group – research in the field of attention psychology, such authors as Gippenreiter Yu.B., Romanov V.Ya. [2], Zaika E.V. [3], etc. In the second group, we combine research in the field of the attention economy, such scholars as Macedonian A. [4], Goldhaber M., and Lanham R. [5]. Despite the

availability of research in the field of analysing the processes of human attention, an unresolved problem is the generalization of factors of attracting and retaining the attention of potential customers in the network, as well as highlighting the features of the user's attention processes on the Internet.

**The purpose of the article** is to reduce the essence of the processes of attracting and retaining the attention of users and systematizing the factors that influence these processes.

At the heart of this study, we will consider the modern approach to information management – the attention economy. Attention is a limited resource, unlike information. The property of attention of users on the Internet includes bandwidth and selectivity. Salso R. L. gives as an example of the selectivity of attention the stage in the theatre: when two actors begin to speak simultaneously, the audience cannot perceive the speech of two actors at the same time, so they choose one. Thus, attention is a limited selective resource of the human psyche. Selectivity of attention has the following explanations [2]:

- Firstly, a person's ability to process information is limited by "channel capacity";
- Secondly, the user can control attention, choosing what to focus on;
- Thirdly, attention depends on the state of the user's excitement, which is related to his interests.

From the point of view of developers of multimedia products, the above factors are poorly managed, since it is difficult to predict the interests, the user, and the motivation for his choice. To attract the attention of users, potential consumers are becoming a global task for enterprises operating on the Internet. In addition to unmanageable factors, we can identify factors that are manageable based on the laws of human perception of information.

Let us consider the process of perception of a multimedia product in more detail. According to Goldhaber M. [5], in the world of an abundance of information, there is a lack of attention. Figure 1 shows that in the process of perceiving a large amount of information, the user exhibits switching attention. As information is filtered, selective attention arises. Steady attention is given to the user if the information is of interest to him.

In Figure 1, the following abbreviations are accepted:

- "I-" – little information;
- "A+" – a lot of attention;
- "I +" – little attention;
- "A -" – a lot of information.

It follows from Fig. 1 that the wider the information field of the user, the more difficult it is for him to concentrate attention. Some authors call it "Internet surfing" [5], in which attention is scattered, gliding. By filtering information, the information field is narrowed, which allows increasing concentration of attention.

We can distinguish different tasks of the developer of a multimedia product, depending on the type of user's attention (Table 1).

The attraction of users' attention occurs in 0,05 seconds [8]. A person forms an opinion about a multimedia product based on the perception of its information structure. The information structure of any multimedia product includes 5 basic elements (Table 2).

The process of attracting attention depends on a lot of subjective weakly controlled factors. This is justified by the fact that the information on the form is the same for all users, while the content of the information is different. Interpretation of meanings occurs subjectively and is based on previous experience of users and their information freedom. Information freedom implies [4] that the user can

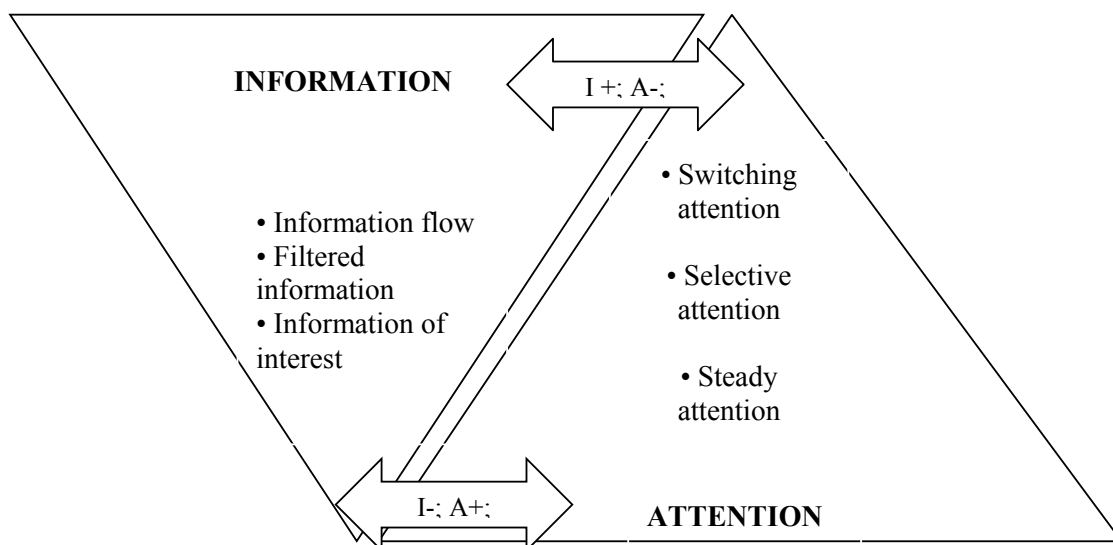


Fig. 1. The relationship of information volumes and user attention [authoring]

Table 1

**Tasks of the developer of a multimedia product  
depending on the type of user's attention [the author's design based on 8]**

Types of Attention	Characteristic	Developer Tasks
Switching attention	Sliding attention, switching under the influence of various stimuli;	To attract attention
Selective attention	Allows abstracting away from distractions, information is filtered;	
Steady attention	The user focuses on the object of attention for a while;	Attention-keeping

Table 2

**The information structure of a multimedia product [the author's design based on 4]**

Information content	The meaning that the user understands when perceives information;
Information on the form	Information forms created by a person as a result of processing sensory data – size, colour, shape, etc.
Functional information	Reflects the effect;
Meaningful information	Reflects the cause;
Incentive information	Information of feelings, emotions;

overcome various information barriers (restrictions). The higher the level of information freedom, the easier and faster a person can perceive and transform information with benefit. For example, solving a mathematical problem overcoming the barrier is the language of symbols and formulas. The development of a culture of information consumption is the growth of information freedom of the user's consciousness. The goal of evolution is to overcome all information barriers.

Perception of information implies overcoming information barriers, while the user has a good mood, enthusiasm, a sense of clarity and clarity of information. In the case of not overcoming the barrier, the user feels limited attention movement, tension, dissatisfaction. Information barriers are necessary to preserve and stabilize the human energy system (development to the limits of mind programs).

If the developer captures the user's attention, then the next task is to keep attention. The process of concentration of attention launches external and internal processes of activating the user's activity to accomplish targeted actions, which is the goal of business in the network. Macedonian A. in his work "Psychoeconomic attention" [4] proves that in the process of perceiving information, the user is faced with the fact of the existence of another's will and intention. For a multimedia product, we will understand the developer's goals as a factor of external intent. The one in whose hands the intention will dispose of the available energy resources. In the process of concentration of attention, the user is exposed to and changes that arise under the influence of the developer's purposes from the outside. At the same time, at the time of concentration of attention, internal processes occur that stimulate the user to act. Attention activates the energy resources of a person to perform actions in order to realize the goal of concentrating on something.

As Yu. B. Gippenreiter notes [2], the concentration of attention has the following effects:

1) fixing effect – the object of attention is long retained in the memory of a person;

2) analytical effect – the object of attention becomes separation, a person allocates more details in it;

3) amplifying effect – the object of attention in some cases is stronger (a weak sound, listened with attention, it seems louder, the meaning is figured out, the image is finished, etc.).

In this regard, it is important to establish the concentration of the user in the perception of a multimedia product. However, in the current conditions of the development of the Internet and information technologies, it becomes increasingly difficult to reach the concentration of attention. According to the latest research by Microsoft in 2015 [8], the average time of attention of the Internet user in 2013 was 8 seconds. In 2000, when the level of development of technology was lower, this indicator was 12 seconds.

An important task is to systematize the factors of the concentration of attention, which will manage the attention and impressions of users. Based on the analysis of scientific literature, we can distinguish the following groups of attention factors: dichotomous and general; Factors of attraction and factors of retention of attention; Managed and unmanaged.

The first group of factors is dichotomous (Table 3). The attention of the user can attract opposite phenomena, for example, too loud musical accompaniment of a multimedia product or too quiet; Bright and faded tones; Flashy and minimalist design.

Thus, it can be concluded that attention is located at the poles of dichotomous factors, but Herbart I. [9] gives an example that erases this opposite in favour of balancing between plus and

Table 3

**Dichotomy of concentration of attention factors [the author's development based on 2, 3]**

Characteristic	Dichotomous factors	Characteristic	
Intensity (stronger impressions crowd out less strong ones) (example, strong sound, bright light);	Strengthening the emphasis	Decreasing emphasis	Reducing the number of stimuli (for example, the picture "Black Square" by Malevich; whisper);
Attention depends on an interesting image, unusualness of the stimulus; Attention is caused by objects different from the surrounding background (moving on a static background, a white leaf falling on a coloured carpet);	Scope of unfamiliar information	Scope of familiar information	Getting in the circle of interests, development of actual topics; Is built on appertia (the results of life experience); Information relevant to the search; Attention is attracted to all that corresponds to the ideas and thoughts existing in the mind of the user (for example, a familiar face in a crowd);

minus. If the user learns that a record has been opened for a lecture on the topic "Multiplication table" (the sphere of a friend), then it is unlikely that he will be interested in this, as well as a lecture on a topic entirely unfamiliar to him, for example, "About the Vega Star" (sphere of an unfamiliar). However, the person's interest in this topic will change if he learns that the solar system is flying in a world space in a certain direction, and the Vega star is directing this movement. In the opinion of Herbart I., interest arises when in a new, unfamiliar user sees something known to him, the old, or, conversely, when in the old we meet something new. In such conditions, the user needs to reconcile old and new, familiar and unfamiliar. Of such laws, it follows that the development of multimedia products should be constructed so that when you click on a hyperlink or in the process of interaction with the product, the user is moving from the known to the unknown, and that a new opportunity has been seen already familiar, maintaining interest and attention. The group of general factors includes all other factors not containing the opposite nature.

Let us consider the factors of attracting and retaining the user's attention.

At the first stage of the perception of information, the user perceives information on the form and stimulus information (Table 2). Errors of the developer at this stage are most dangerous because the second chance to impress the user may not be presented. As Kelly K. notes [7], with large volumes of information on the network, errors are too expensive and, in effect, cancel the deal.

In the second stage, holding the attention of the user is involved in the process of perception, concentration, and attention allows to perceive the content of information and semantic information functional (Table 2). At this stage, a significant part of the retention factors can be considered taking into account the criteria of assessments. Assessor's score is a calculation of the usefulness of the page for users on the basis of its relevance to the request. Evaluation is made by employees

of global Internet campaigns, such as Yandex, Google.

Figure 3 shows the classification of factors for attracting and retaining the attention of users of a multimedia product on the Internet.

The most important criteria for assessing assessments are the relevance of information, design, and speed of page loading. According to a study by Amazon.com, the increase in site load time for every 100 milliseconds leads to a 1% drop in sales. As the authors of the study note, 64% of buyers will not make a purchase, in the case of a long wait for the page to load. Also interesting are the data that if the user is interested in the brand in advance, then the likelihood of attention to advertising is increased by 25% [11].

Based on the above classification (Fig. 3), developers of multimedia products must take into account all possible factors for attracting and retaining attention, as well as predict the scenario of user interaction taking into account unmanageable factors. An important task for further research is to identify the significance of factors and their effect on the result. The result is understood as the fulfilment of targeted actions, laid down by the developer of a multimedia product. The achievement of the result will be related to the processes of concentration of attention, which we can divide into explicit and implicit types (Table 3).

**Conclusions.** Based on the results of the study, the relationship between the volume of information and the attention of users has justified: the more information, the less the attention of the user. Formulated the task of the developer of a multimedia product based on three types of attention: switching, selective, and sustainable. The elements of the information structure of the multimedia product are identified, and their connection with the processes of attracting and retaining attention is established. A classification of the factors of attracting and retaining the attention of users of a multimedia product on the Internet is developed, which will allow controlling the impressions of users.

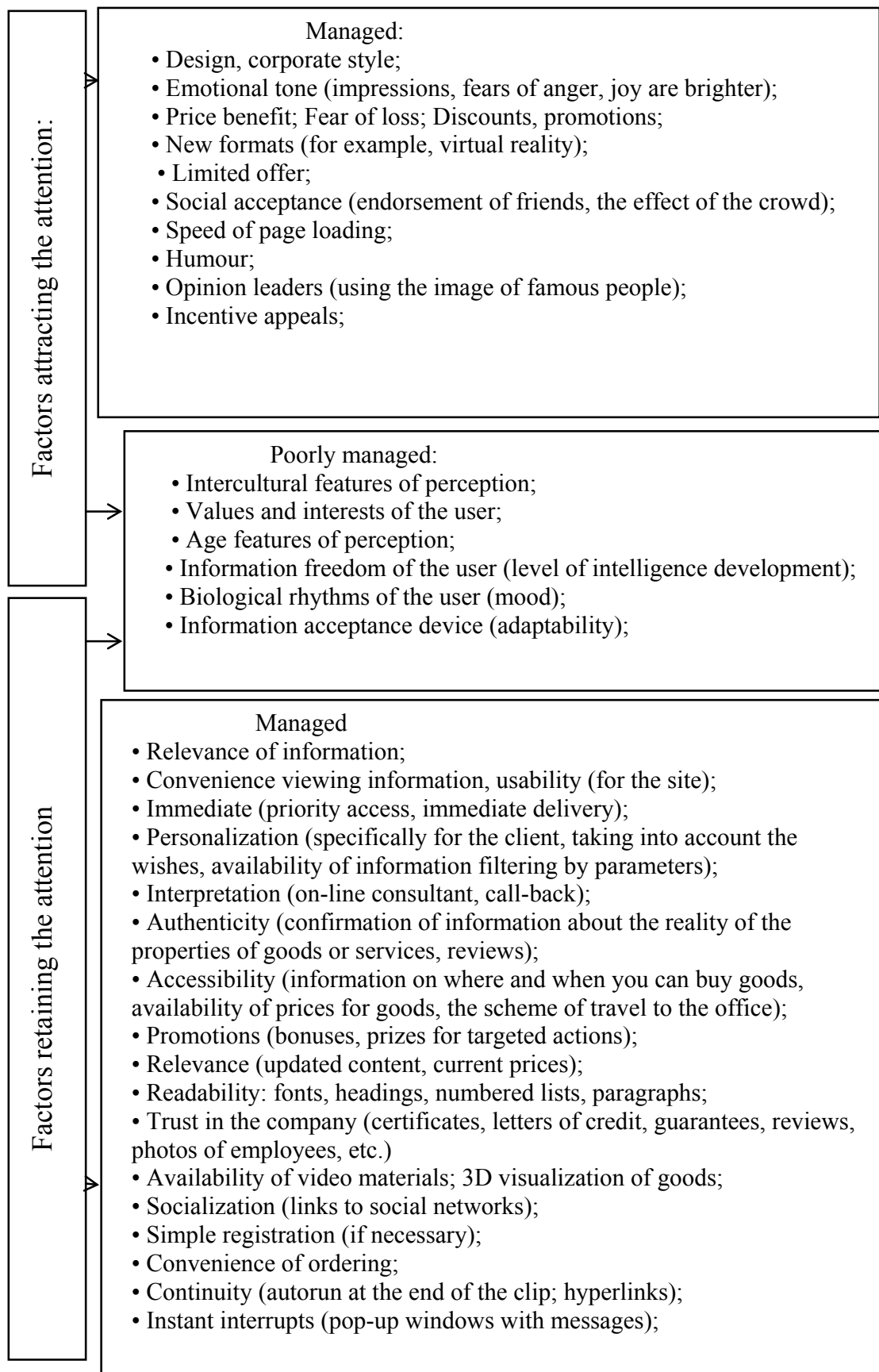


Figure 3. Classification of factors for attracting and retaining the attention of users of a multimedia product on the Internet [the author's work]

Table 3

**Forms of the concentration of attention [the author's development based on 2, 3, 4]**

<b>Explicit types</b>	<b>Implicit types</b>
External attention (expressed in mimicry, postures, movements, ability to listen, it is logical to explain the idea)	Intellectual attention (active thought processes, immersing in meditation);
Motor attention (attention in physical activities, for example, the ability to dance, play sports, repair the watch)	Energy attention (release of energy for the performance of actions, enthusiasm, assertiveness);

**REFERENCES:**

1. Matthew C. (2015). Introduction, attention as a cultural problem. The world beyond your head: on becoming an individual in an age of distraction (hardcover) (1st ed.), Farrar, Straus and Giroux.
2. Психология внимания / Под ред. Ю.Б. Гиппенрейтера, В. Я. Романова. – М.: ЧеРо, 2005. – 858 с.
3. Заїка Є.В. Психологія уваги: теорії, методи дослідження та розвитку. – Харків: ХНУ ім. В.Н. Каразіна, 2013. – 120 с.
4. Македонский А. Психозкономика внимания. – РИК Деснянская правда, 2011. – 320 с.
5. Goldhaber M. (1997). The attention economy and the net. First Monday, 2 (4-7), P. 63-66.
6. Lanham R. (2006). The economics of attention: style and substance in the age of information.
7. Kelly K. Better than free. Retrieved from <https://www.edge.org/conversation/better-than-free>
8. Iskold A., McManus R. (2007). Brief introduction to the economics of attention: the economy of attention comes to replace the information economy. Computerra, 10, P.14-20.
9. Herbart I. (2007). Psychology. Publishing house "Territory of the Future".
10. Чалдини Р. Психология влияния. – ИД «Питер», 2014. – 336 с.
11. Sargsyan A. (2015) Analysis of the effectiveness of media advertising on the Internet: an overview of foreign research. Advertising. Theory and practice. 06 (72). P. 73-77.