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THE REFLECTION OF ELECTRONIC JOURNALS' SUBJECT-MATTER IN A COLOR SYSTEM

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ABSTRACT

The article examines an electronic journal as a modern type of a periodical from the standpoint of the distinguishing features of the color palette (color system). The topic of the color influence on the user in the electronic journals' design has not been substantially studied to date. With the aim of attracting the target audience not only the content is important, but also the design.

The emphasis is laid on identifying the relationship between the color system applied for the journal's design and its content (functional focus). The author sampled and analyzed a considerable amount of factual material, representing the examples of the electronic pages' design of the journals and magazines of various types. In accordance with the division into thematic groups, characteristic color combinations and the patterns of their use on the page were identified. The thematic component is far from being crucial in choosing the electronic journal's color scheme. The reason for this is the presence of a large number of additional factors affecting its formation. Moreover, there are general trends in graphic design that set conventional limitations for the color palette, especially the trend towards minimalism.

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The relevance of research. Electronic journals currently occupy a significant place in the information sphere of Internet resources. However, they have not yet been studied from the standpoint of visual presentation [5, 6, 8]. The design of electronic journals has not been developed as a separate direction; therefore the elaboration of all its aspects is a relevant topic for research.

The extent of research work done on the problem. The fast-paced development of information web-based resources has led to the growing popularity of Internet publications, which include electronic journals. These have come into existence relatively recently as a type of periodicals. As a matter of fact, there are practically no publications devoted to the study of this issue from the standpoint of design. Separate publications are devoted to technical issues of creating a journal on the internet. In the scientific literature, attention is paid to the magazines' content, their functions, the character of the impact made on the audience, the analysis of the audience age, the comparative aspect of men's and women's magazines, etc. [1, 2, 5, 7, 9].

Up to date, a considerable design experience in the look of internet sites and web pages has been accumulated. It is these elaborated principles that are applied in the development of the design of an electronic journal [9]. The insights of graphic designers in the field of print media are also used [4, 5].

The purpose of this article is to determine the current state of the art as regards the use of the color scheme in the design of electronic periodicals on various topics.

Proceeding from the purpose, the following tasks were set:

- to study the subject matter of electronic periodicals;

- to perform the sampling of the journals and magazines in various thematic areas so as to identify a specific color palette;
- to analyze the principles of using color in the electronic journals and magazines' design;
- to determine the distinguishing features of creating the color scheme for electronic periodicals, depending on the subject matter.

Materials and Methods. The study draws on the principles and methods of historical analysis, observation, description, formalization, generalization, structural, quantitative and comparative analysis, classification, objectivity, specificity, determinism. The method of content analysis is used to study the content of journals presented in visualized forms. The study of the visual components of the publication was carried out by the method of semiotic analysis.

Research results. Electronic journals are defined as periodicals published in electronic format on the Internet, which contain full versions of publications, and as such refer not only to the sites that provide access to the content and abstracts of the articles. Electronic journals are subdivided into three groups:

- parallel electronic journals – are electronic versions of traditional print publications, while the print and electronic versions are identical;
- integrated electronic journals – are published in print and electronic format, which differ, they rather complement each other;
- original electronic journals – are published only in electronic format, also known as networked journals.

The archives of electronic preprints of scientific articles perform a similar function. Similar to the fully-fledged electronic journals, such archives present to their subscribers the new scholarly articles and provide access to the texts.

The publication of an electronic journal on the network is presented in the form of one or several files, which contain articles reflecting the subject matter of the journal. Access to the articles is made by the table of contents using a system of links. The journal has a table of contents from which you can be redirected to the text of a particular article. An electronic journal, unlike a printed one, can contain interactive elements, which makes it more vivid for perception. This is especially the case with the children's magazines.

Due to their accessibility, electronic journals play an increasingly important role in the social life, as they provide the information in a structured manner. Apart from that, they can have the subscription features and a parallel web page meant for discussing publications.

For consumers, electronic journals are a sheer commodity. Therefore, design is an essential factor in the demand for the journal on the network. The color system of the journal is one of its main elements. The topic of the influence of color on the user in the design of electronic journals has received a relatively scarce consideration to date. It stands to reason that to attract the target audience, not only the content is essential, but also the design.

In paper versions of the journals, the first stage of evaluation is the reader's acquaintance with the cover. In the case of an electronic publication, this is obviously the web page. The main objectives of color scheme are to attract attention, to foster the orientation and facilitate the perception. However, the choice of color scheme is determined not only by the potential audience, but also by the nature of the publication and its subject matter.

The color is a bearer of information. Its functions in periodicals can be as follows:

- communicative: distinctive, opposition, division, uniting;
- symbolic: associative, associative-coding, encoding;
- expressive [3, c. 1-2].

Online electronic journals can be divided into groups (or types). A successful version of the typology was proposed by I. Lapteva for printed journals [3, p.1-2], which was to a certain extent used in this study.

1. Specialized magazines:

- official;
- scholarly
- popular scientific;
- literary and artistic;
- journalistic;

- professional;
- special interest magazines.

2. Entertaining and educational:

- women's – as with the print periodicals, publications of a universal nature prevail, which satisfy the information needs of women in various areas of their lives, the specialized publications devoted to the fashion and beauty industry are the most robust in their development;
- men's – by analogy with the printed magazines, also reflect the role of a man, his behavior and social connections as well as interpersonal interaction.
- children's – are educational and insightful by their nature.

We performed a sampling of electronic journals [10-16]. The most striking examples that provide an overall general idea of the color system formation in magazines of the diverse thematic focus are presented in Tables 1-3.

Table 1. Electronic scholarly journals

Subjects	Color system of the journal's web page			
Medicine				
Computer science, mathematics, econometrics				
Economy, business, finance				
Geology, geophysics, geography				
Biology, chemistry, ecology				
Architecture, construction, design				
Archeology, history, ethnography				
Philology				
Philosophy				

Table 2. Electronic entertainment magazines


Subjects	Color scheme of the magazine's web page			
Children's				
Women's				
Men's				
Youth				

Table 3. Electronic special interest magazines

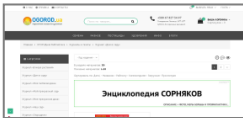
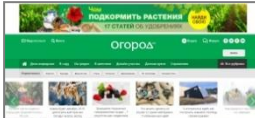















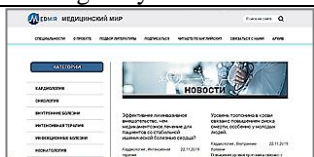








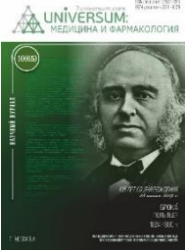

Subjects	Color scheme of the magazine's web page			
Country house, garden, kitchen garden				
Cooking				
House master				
Cars				
Handicraft				
Hunting and fishing				

Table 4 is an example of a more detailed analysis of the color system of one of the scholarly journals' types, in particular, medicine (see Table 4). It does not present the entire analyzed factual sample, but the most striking examples. The limitations are caused by the limited amount of graphic material.

Table 4. Analysis of the color system of electronic medical journals

Subjects	Magazine name	Page Layout / Color	Logo	Colors
Medicine	Medical World			Main – shades of blue Additional – gray Accentual – red
	Psychopharmacology & Biological Narcology			Main – shades of blue Main - // - Accentual – none
	Spine Surgery			Main – shades of blue Additional – gray Accentual – none
	Stroke			Main – black Additional – yellow Accentual – none
	SonoAce-Ultrasound		-	Main – black Additional – grey Accentual – yellow
	Universum: Medicine and Pharmacology			Main – shades of green Additional – grey Accentual – none

Based on the above examples, the following patterns can be traced:

- the color palette in the design of electronic magazines contains the colors of the logo;
- the main bulk of medical journals are designed utilizing the shades of blue as the main color, gray as an additional color, and red as an accentual color;
- magazines designed taking into account the current trends in graphic design stand out from the whole mass – a minimalistic scheme utilizing the black and yellow colors in two variations: the main black or yellow color act as an additional or as an accentual one, the gray color can also be additional; in this case, the text background is presented in the classic version – the white color;
- a separate group is made up of magazines designed in the traditions of academia – the use of well-designed images in line graphics, monochrome photos, the color system is built on nuanced shades, gradients: the main color is shades of muted green, the additional color is gray, there are no accentual colors.

Color is known to have its own symbolism (a historically formed one, a genetic one and a regional one), gender and age characteristics of perception, etc., which was discussed by us in previous articles. Therefore, when choosing a color system for the design of an electronic journal, it is necessary to analyze the information field in which the images and stereotypes are likely to operate.

For instance, despite having a gender-identical audience, every men's or women's magazine will have its own consumer. The readership differs in social status, age, income level, etc. The

peculiarities of the readership determine the choice of the color system, the nature of its use, the distinguishing features of layout and design, the ways of presenting the illustrative material, which also falls into the sphere of influence of the general color palette.

The technique of color contrast is used to highlight the key information and to enhance its significance. Both types of contrast are used: achromatic (light) and chromatic (color). Most often, two complementary colors are used: red-green, yellow-violet, blue-orange. The color contrast is mainly used to design the advertising modules. In editorial material, the color contrast can be used when the message is of particular importance, and the light contrast is more widely used. Black font on a white background is one of the most common light contrast techniques.

This example below (Fig. 1) traces the changing trends in graphic design. They relate to any objects of graphic design, including scholarly journals of any format. Here, the font in the title was changed towards simplification, while the color contrast with the substrate was increased: there was the white font on a red background – there became the yellow font on a black background. The overall color scheme has become more laconic and graphic.



Fig.1. The impact of general trends in graphic design on the color system of electronic journals

In the analyzed examples of the scholarly journals (see Table 1), with rare exceptions, the main field of the page is white or light pastel shades. This artwork makes the magazine page as readable as possible. Scholarly journals are primarily aimed at conveying the relevant information, so they have a very laconic color scheme. The problematic issue is advertising, which is an utterly alien element on the page.

Electronic scholarly journals of diverse directions can be published by one publishing house. In this case, there is uniformity in the color scheme of the journals, regardless of the subject matter (Fig. 2). The theme stands out due to the varied use of color (in this case, in the series "Natural and Technical Sciences" a large proportion of red is used, while in the series "Humanities" red is used minimally as an accentual color) and in the title illustration.



Fig. 2. The use of a single color palette as a corporate identity for the publishing house in a different system to highlight the journals' subject matter

Research results (conclusions). As a result, it was found that scholarly and other professional journals have mainly a monochrome artwork based on gradients of one color. The neutral, muted color is chosen, the main field is predominantly white. Gray-blue or blue color scheme prevails. The natural sciences, in particular ecology are distinguished by the use of shades of green and ochre. Red and orange colors can be used as accents, but in a very minimal amount – 2-10% of the entire color field.

Entertainment magazines have a wider color palette. In the design of children's magazines, a color system was used, built mainly on the predominance of pure open colors. Their brightness and saturation can even be excessive, which tires the eyesight and interferes with the perception of the

texts. The basic (background) ones are bright green and blue, the additional ones are used in large quantities, which brings diversity.

The color scheme of women's magazines has two distinct directions associated with their themes. On the one hand, the emphasis is placed more on housework, childcare, etc., so it uses bright vivid colors (similar to children's magazines) and a white background. Color is used to highlight the headings and articles, line graphics, photographs are mostly kept in a pastel palette. On the other hand, the second direction is fashion and beauty. Thus, here the dramatic design is achieved through a laconic but catchy color system. Recent background colors are white, grayscale, black. Additional colors are as follows: shades of red (noble), deep pink (fuchsia), yellow (gold).

Men's magazines in design can also vary from a pronounced status (a classical version, well anchored in the subconscious) to the prevalence of an intellectual component, which can be attributed to the latest trends. Status is indicated by a laconic color system based on the use of the contrasting classical combinations: white – black, black – gold. Intelligence is more emphasized by the introduction of shades of blue (analogy with scientific journals).

Youth magazines in their design tend towards men's and women's. But they are generally executed in a more graphical artwork, using the minimum number of colors – black, red, blue, pink. The background color is predominantly white.

The special interest magazines reflect their topics to the greatest extent in the color system used in their design. The theme of working with soil and plants is expressed in shades of green. The theme of house construction is expressed via the color of the material with which the specialist works, for example, wood has shades of ocher, etc. Background colors are white with some shades of gray.

Discussion of results. Among the negative aspects of using color that were identified during the study, the following should be noted. When choosing a color system for electronic journals on various topics, the perception peculiarities of people with visual impairments are not taken into account. Obviously, the most publications will not be available to them. For example, the greatest contrast is found in children's magazines, primarily by using the bright, open colors. Textual information is most clearly seen in scholarly publications, since they use a “classical” scheme – a black text on a white background. But journals' navigation can be seriously hampered by the monochrome color system – the tonal differences between components are scarce, making the entire page blurry, without clearly highlighting the structure of the journal.

Advertising is another major obstacle to color perception in electronic magazines. Some of them embed it into their overall context. In such case it does not interfere with the general vision of the page. In the case of the formal inclusion of ad units in the page field, they, due to their specificity, completely change the impression from the perception of the magazine, interfere with the study of the content.

Conclusions. In general, it can be noted that the subject matter component is far from being crucial in choosing the color scheme for an electronic journal. This is due to the presence of a large number of additional factors affecting its creation. Moreover, there are general trends in graphic design that set out though a conventional, but still a limitation in the color palette, especially the trend towards minimalism. What matters the most is the well-established system of stereotypes in color preferences and the conveyance in color of certain messages (e. g., the status). Hence, it is necessary to pay attention to the further elaboration of this problematics, since color has a considerable potential in design and makes it possible to diversify the visual imagery in the design of electronic journals.

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