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ENCODING AND DECODING VISUAL INFORMATION USING COMPUTER GRAPHICS

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Message, meaning and information are completely different concepts. How we recognize these messages, their meaning, and associations that are associated with them depend on our learned meaning and cultural interpretations, as well as on the systems and agreements within which they exist. It is the understanding of this process that largely forms the basis of graphic design.

In the 19th century, the American philosopher Charles Sanders Peirce (1839–1914) proposed the word semiotics. He believed that signs take the form of words, images, sounds, smells, tastes, actions or objects. However, they are essentially meaningless when № meaning is assigned to them. The Swiss linguist Ferdinand de Saussure also formulated the assumption that words have № other meaning than the one we give them. According to de Saussure, a sign consists of two parts – «*signification*» and «*signified*». Only from the combination of both parts do we get a «*sign*». For example, if we drew sneakers, then this is what is represented, which can be called marked.

In writing the word, we use the letters CROSS (each letter is a separate linguistic sign representing a separate linguistic sound). This word is the denotation we use to denote the design of the sneakers. However, this is an arbitrary connection. In German, the word «sneakers» will sound like «Turnschuhe», and in English «sneakers». So the relationship between signifier and signified depends on the context and our agreed upon systems or conventions – such as language. This model is often called «binomial» (because it combines two components). Peirce proposed to distinguish three categories of signs: *image*, *index* and *symbol* – depending on the way they denote objects.

Any sign that physically resembles what it signifies can be described as an *image sign* (or *iconic sign*), for example, a photo of sneakers can be called an iconic sign because it physically resembles the sneakers it depicts. When we deal with an *index*, we are talking about a direct connection between a sign and an object. A traffic sign, for example, only makes sense if it is placed on the street. The symbol bears № resemblance to what it represents. We must be aware of the relationship between the sign and the object in order to understand what the sign represents. Examples of symbols are national flags or logos of companies or organizations. Alphabets, punctuation and Morse code are also symbolic.

The study of visuality shows us that graphic design is a visual representation of specific messages for a target audience. Determinant here is the meaning proper to and attributed to various visual elements: text, images, and illustrations. Let's consider some concepts and ways in which this meaning can be appropriated and developed. In visual communication, there is *№* unencoded message, everything is encoded from the beginning, this encoding occurs as a result of the experience learned by the human brain.

We understand everything we see through the prism of this experience, without analyzing the values and inherent meanings rationally dictated by it. Our «decoding» occurs through interpretation and evaluation, we associate the meaning of meaning with its corresponding encoding.

Any element, text or image, exists on two different levels of meaning: *denotative* and *connotative*.

Denotation answers the question «*what is depicted*»? and sends to of physical reality, that is, if we consider an object or subject that does not exist real thing – a photo or an illustration, for example – then we perceive it as a presentation of the corresponding object or subject. So if it's, say, a photo of sneakers, then the image we're viewing is just a representation of the «sneakers.» This is what in semiotics we call «signification». Even when this sneaker image has a bunch of different sneaker images next to it, its meaning will remain the same: «sneaker.»

Connotation answers the question «*how is it depicted*»? This is the second level of notation, as Roland Barthes pointed out. The fact that we all have different cultural experiences means that the way we perceive images is influenced by individual and collective perspectives. Thus, our understanding of information and meaning is determined by a combination of knowledge, learning and experience acquired throughout life. It is the combination of learning and experience that determines our perception of any meaning in any image and under any circumstances. Therefore, the «connotation» of images is relative and depends on our cultural connections. And therefore, the reading of the image is arbitrary, because we form meaning according to these learned rules as we develop throughout our lives [1].

As designers, we must first consider what we say and then how we say it. When we speak, we not only pronounce words and sentences, but also use a certain tone of voice. Everything is the same in the image and typography [1].

Work on any graphic design project begins with the development of a visual series, the elements of which will be included in the graphic concept of the project. Images can be created using manual drawing techniques, using graphic editors, or a combination of them. There are many ways to obtain and process images (digital cameras, scanners). The most important thing in this process is to have a clear idea or plan. Classic analog images, such as photography, naturally lend themselves to digitization and processing in analog programs. The preparation process depends on its purpose: printing, viewing on the screen and online use.

The educational tasks of the «Computer graphics» course for future designers, as well as artists and future teachers of fine arts are structured so that in the process of mastering the graphic editor, the student simultaneously solves technological and artistic

tasks [3]. The formation of the ability to encode information through the creation of denotative and connotative images is carried out using such teaching methods as:

1) the method of visual-aesthetic selection of necessary and sufficient components of the line of sight corresponding to the tasks of design and planning;

2) method of compositional search based on ready-made (as a rule – applicative) colorographic forms through collage as a technical technique.

Collage is a technical technique that consists in cutting out both different images and their fragments and organizing them into one composition [2].

The sequence and content of the course tasks are built in accordance with the stages of creating a graphic project, the first of which is the development of a visual series. Getting to know the working environment of Adobe Photoshop begins with the creation of denotative images. Students are asked to iterate through one image in ten variations using the filter gallery menu.

At the stage of mastering selection and deformation of images and working with layers, it is suggested to create a collage in the style of pop art. You need to choose a visual line of at least ten variants of the image of the same subject to the chosen topic and create a multi-layered collage, applying the basics of working with layers (fig. 1).



Fig. 1. An example of the task «Collage in the style of pop art»

Working with text in the Adobe Photoshop environment involves experimenting with the choice of font designs and typed words in such a way that the font has an interesting relationship with what the word means. Students need to choose four adjectives that can refer to their object that matches their chosen topic, or describe its characteristics or properties, type the name of their object (for example, «sneakers») using the font image associated with each adjective (for example, «children's», «classic», «Ukrainian», «big») (fig. 2).

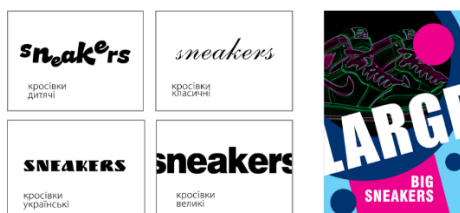


Fig. 2. Examples of the task «Character of symbols» and the use of text in a collage

The given examples of educational tasks clearly illustrate the coding and decoding of visual information by means of computer graphics in the process of training future graphic designers.

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TEACHING FOREIGN LANGUAGE ABROAD

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Ukraine is among the top countries with highly educated population. Although in our country people still believe in the myth that once you get a diploma, you will get a job and earn good money, young people believe that a university degree is a waste of time. Higher education in our country has depreciated not because it is available to many people, but because the quality of education has become second-rate. Many graduates leave to study in Poland, the Czech Republic, France and other countries. Let's try to figure out why. Having worked as a university teacher for more than 20 years, I asked myself this question many times. Our students do not want to study and this demotivates teachers. In addition, the work of the teacher has completely gone down in value, and the teachers themselves have lost their authority. Corruption is rampant and many universities have turned into «shops» for issuing diplomas. A whole state system has been built, the participants of which master all the techniques of marketing. How to break this vicious circle? Without truly educated specialists, our country has № future. In addition, the level of education of the population affects the quality of our life. And we all want to live better in a new Ukraine, liberated from the communist past.

Ukrainian education needs a global reform, and not just a «cosmetic overhaul». Ukrainian officials often say that Ukraine spends on education № less than European countries (as a percentage of GDP). It really is. But they never talk about the other side of the coin – funds are spent extremely inefficiently, and the quality of both secondary and higher education is deteriorating year by year. Where are the bottlenecks in the educational system that steal the future from the country [1, p. 1].

Firstly, Ukrainian education has ceased to be prestigious, the methodology and «style» of teaching are hopelessly outdated, secondly, our universities do not provide students with internships and employment, and, finally, we lack elementary computers, textbooks, laboratories, without which modern education is unthinkable.