SUB-SECTION 6. Theory, practice, and methods of teaching

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THE DUAL CODING THEORY AS AN ELEMENT OF ENGLISH LEARNING WITH MULTIMEDIA AT TECHNICAL FACULTIES

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Ключові слова: теорія подвійного кодування, мультимедіа, англійська мова технічного спрямування, технічний факультет, технічний університет, навчання, вивчення, вербальний, невербальний.

The influence of multimedia on students' everyday life is very strong. They encounter audiovisual materials, i.e. multimedia, everywhere: on TV, Internet, sometimes even on billboards around the city. Therefore, it would be wrong to ignore it in the course of study and not to use this source of authentic information for the English language teaching at technical universities.

Multimedia comprises various elements: audio, video, text, graphics, animation, etc., which can be used to grab students' attention, enhance their understanding, and increase the period of retention of newly obtained educational materials.

The human brain processes the received information through two channels: audio and visual ones. The dual coding theory (DCT) gives a detailed characterization of this process: two subsystems–verbal and non-verbal–construct our cognition, and so, the mind has two classes of mental representation, i.e. codes: verbal representation and mental images. The former deals directly with the language, whereas the latter works with non-linguistic elements. These 2 systems, working together, help with the

language acquisition [2, 163]. This happens due to the fact that our memory, getting various kinds of information through two aforementioned channels, has two different but interrelated storages – verbal memory and image memory. When there appears a referential connection (a link) between verbal and non-verbal systems in a certain complex associative network, verbal and imaginal codes join and make possible such actions as the provision of images to words and naming to pictures [2, 153]. This process helps students connect the video they watch (imagery) with words they hear in English (audio). It is especially useful for teaching students of technical specialties. According to the DCT, students can derive the meaning of words from their semantic relations with other words, as well as from images. Thus, in the case of multimedia learning, the English language study becomes twice as effective.

It is believed that people develop visual language skills before verbal language development, and in time the former becomes the basis for the latter, which serves as an explanation for technical university students' need of visual information rather than textual [1; 3] since they rely on pictorial data more than on textual for the initial interpretation of the meaning of new terminology at the English for Specific Purposes lesson.

The proof of multimedia efficiency through the dual coding theory is that a multimedia task calls upon the other code, i.e. a verbal and a concurrent imagery task, whereas two tasks that use the same code interfere strongly with each other as long as they call upon the same representational and processing resources.

According to the DCT, students of technical education can combine the English names of some devices' parts to their visual representation (on a video or at a picture) and in this way make comprehension and lexis retention in the memory easier and more 'solid' with further creation of an associative chain of various words and phrases as well as corresponding images in the brain, and thus, enriching the vocabulary.

Although, this dual coding basis (verbal and nonverbal link) has some factors that influence the ease and efficiency of a referential combination of words and images in the brain [2, 155]:

1. Imagery concreteness. Some words that we obtain through the verbal channel have the concrete meaning (e.g. motor, switchboard, etc.), which can be derived from the semantic relations with other words, but some have an abstract meaning, which can be understood only through associative relations (e.g. transparency, conduction, etc.), and thus, it is rather complicated or even impossible for students to find a corresponding image for them to store in the long-term memory. This fact should be remembered when an English language teacher prepares a vocabulary to be studied in the course of work with authentic audiovisual aids at a multimedia lesson.

2. Individual factor. Not every person can easily create an interrelation of verbal and pictorial data in their minds; some will use images as a foreign vocabulary reminder effortlessly, in different situations and contexts, whereas others may find it hard to relate concepts to their non-verbal representation at the stage of lexis memorization and sending to the short-term and then the long-term memory.

Nevertheless, multiple types of research and experiments prove that the preparation of a foreign language lesson while bearing the dual coding theory in mind greatly facilitates students' results.

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