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# СУЧАСНІ ПЕДАГОГІЧНІ ТЕХНОЛОГІЇ

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## THE USAGE OF MIND-MAPS FOR THE FOREIGN LANGUAGE LEARNING AT HIGH SCHOOL

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*Despite profound objective and subjective differences, the development of the educational systems of different countries takes place in a single direction – the search for the new values and aims of education. If we take a look at the modern school (educational) programs and books, we will observe the sudden increase of information volumes, first of all, through complication and enrichment of conceptual apparatus. This is a result of the wish of modern education to exclude any lagging behind development of the science, which, in its turn, facilitates and speeds up the development of production, and education. Such a rapid development of modern society leads to emerging of serious contradictions in the system of national education. These contradictions confirm that the extensive way of the education development can't be too long. As one of the instruments to modernize the education the mind-maps are viewed. The top priority in the development of modern humanitarian education and foreign languages lies in its communicative focus. All the members of the educational process are personally interested in the guaranteed high-quality results, which can be achieved through the technological approach during the high school classes. The necessity of the methodologic solution of the increasing results of educational process, conditioned by the requirements to the class, which have changed and the desire to overcome the contradictions mentioned above facilitated the choice of the topic: "The use of mind-maps for studying foreign languages at high school". The technology of creative multilevel information encoding (analogous to sign-and-symbol activities) is made up of method: mind mapping. Mind maps focus on structuring the contents of a text making use of the principles of information encoding to create a text gestalt by means of encoding verbal information in terms of images, specially designed abbreviations and shortenings. Mind maps can be used for pretty much any thinking or learning task, from studying a subject (such as a new language) to*

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*planning your career or even building better habits. They're great for teams to use as well, for group brainstorming and interactive presentations. The methodological base of the research is a psychological concept of the age peculiarities of a personality, the theory of the creative educational activity, the theory of creativity, the thesis of the of Gestalt psychology on the integral perception (gestalt); innovational educational technologies, the theory and methodology of teaching foreign languages of national an foreign scientists. The mind map is the external mirror of your own radiant or natural thinking facilitated by a powerful graphic process, which provides the universal key to unlock the dynamic potential of the brain. In the context of overloading pupils with academic information the issue of applying effective means of its mastering, namely mind maps (mastery learning) allowing of gaining deep and lasting proficiency in academic material in a compressed, verbal and image form, becomes especially relevant.*

***Key words:*** *creativity, pedagogical conditions of creativity development, mastery learning, sign-and-symbol activities, the technology of creative multilevel information encoding, visual support, the information encoding.*

# ЗАСТОСУВАННЯ ІНТЕЛЕКТ-КАРТ ЯК КОМПЕТЕНТНІСНОГО ПІДХОДУ ВИВЧЕННЯ ІНОЗЕМНИХ МОВ У ШКОЛІ ДЛЯ УЧНІВ СТАРШОЇ ЛАНКИ

**І. В. Власюк**

*Стаття присвячена дослідженню проблеми підвищення результативності процесу навчання, обумовленого вимогами до уроку, що змінилися, та прагнення перебороти протиріччя між основною метою освіти – підготовкою учнів до майбутньої професійної діяльності й збільшенням їх завантаженості; між вимогами сучасної педагогічної думки, що розглядає навчальний предмет як засіб розвитку учня, і орієнтацією вчителя на методи й засоби, характерні для репродуктивного навчання; між потребою в розробці нових технологій навчання, що забезпечують глибоке засвоєння знань учнями, і недостатньою готовністю вчителя до їхньої реалізації. У роботі розглянуто теорія творчої навчальної діяльності, теорія креативності, положення Гештальтпсихології про цілісне сприйняття (ґештальт); інноваційні освітні технології, теорія та методика викладання іноземних мов вітчизняних і зарубіжних учених. В статті доведено, що засвоєння базового ядра навчальної програми з англійської мови та зменшення рівня реактивної тривожності учнів можна домогтися, якщо навчальна інформація буде подаватися у вигляді інтелект-карт; учні будуть уміти представляти будь-який навчальний матеріал у згорнутому вигляді з використанням невербальних засобів вираження. У статті підтверджено, що екстенсивний шлях розвитку освіти не може бути нескінченно довгим. У якості одного з інструментів модернізації освіти бачаться інтелект-карти. Основним пріоритетом розвитку сучасної гуманітарної освіти та іноземних мов зокрема є її комунікативна спрямованість. Усі учасники освітнього процесу об'єктивно зацікавлені в гарантованому досягненні якісних результатів, що можна реалізувати в рамках технологічного підходу під час проведення занять у вищій школі. В умовах перевантаженості учнів навчальною інформацією особливої актуальності набуває застосування ефективних засобів її опанування, а саме інтелект-карт (технології повного засвоєння знань), які дають змогу у стислій, вербально-образній формі глибоко й міцно засвоювати навчальний матеріал.*

***Ключові слова:*** *інтелект-карта, креативність, провідна діяльність, педагогічна технологія, технологія повного засвоєння знань, технологію креативного кодування інформації, зорова опора, перетворення інформації.*

**Introduction of the issue.** Modern development of educational systems of different countries, despite the significant objective and subjective differences, is mainly conducted in one direction – the search for new values and goals of education. If one carefully studies modern school curricula and

textbooks, a sharp increase in information saturation, primarily due to the complexity and enrichment of the conceptual apparatus, can be identified. This fact is a consequence of the desire of modern education to avoid any significant retardation of the development of science, which, in turn, encourages and accelerates the development of production, and hence education.

Such a rapid development of modern society leads to serious contradictions in the system of national education.

**Current state of the issue.** The methodological basis for this is the psychological concept of age characteristics of the individual (L. Vygotsky, I. Kon, N. Leitis), the theory of creative learning (N. Salmina), the theory of creativity (D. Bogoyavlenskaya), the provisions of Gestalt psychology on holistic perception (Gestalt); innovative educational technologies (M. Klarin, G. Selevko, V. Slastionin, etc.), theory and methods of teaching foreign languages by Ukrainian and foreign scientists.

*There are contradictions between:*

- the main purpose of education – to prepare students for the future professional activity - and increasing their workload;
- between the requirements of modern pedagogical thought, which considers the subject as a means of student development, and the teacher's focus on methods and tools specific to reproductive learning;
- between the need to develop new learning technologies that ensure the deep acquisition of knowledge by students, and the lack of readiness of teachers to implement them.

**Outline of the unresolved issues brought up in the article.** These contradictions confirm that the extensive path of education development cannot be infinitely long. Mind maps are seen as one of the priorities of modernization of education.

**Aim of research is** to substantiate the suitability of using mind maps in English lessons at school.

**Results and discussion.** Despite the rather large amount of literature on the problems of learning technologies, schools in Ukraine are paying more and more attention to the technology of full mastering of educational material.

The term "pedagogical technology" is associated with the technology of production activities and in search of analogy was applied to the educational process. The word "technology" of Greek origin: techne – art, skill, logos – teaching, knowledge, science. It means knowledge of skill.

The concept of "pedagogical technology" has come a long way from "technology in education" – "technology in education" (30s – the emergence of the first programs of audiovisual education), through "technology of education" – "technology of education" (50-60- those years – the introduction of programmed learning) – to the "pedagogical technology" of today. In the modern pedagogical sources there is no unity in the definition of this term. Studies by V. Bogolyubov, M. Clarin, G. Selevko, V. Slastyonin and other scientists are devoted to this topic [15: 86].

The Association for Pedagogical Communications and Technology of the United States of American defines pedagogical technology as a complex, integrated process that includes people, ideas, tools, and ways to organize activities to analyze problems and plan, provide, evaluate, and manage problem-solving that encompasses all aspects of learning [14: 105].

The concept of "pedagogical technology", which gives V. Slastyonin as a set of "actions, operations and procedures that instrumentally ensure the achievement of the projected result in a changing educational process" [13-15].

The authors of the technology of full

acquisition of knowledge (Mastery Learning) are American psychologists J. Carroll, B. Bloom and their followers. In our country, the theoretical justification of this technology can be found in the works of M. Klarin [18: 113]. The authors of the technology of full acquisition of knowledge as a working hypothesis accepted the assumption that the student's abilities are determined not by their diligence, but by the optimal conditions for the child, which requires an adaptive learning system that allows all students to fully master the material of the curriculum.

J. Carroll drew attention to the fact that in the traditional educational process learning conditions are always fixed (the same for all study time, method of presenting information, etc.). The only thing that remains unfixed is the result of learning. J. Carroll proposed to make a permanent parameter of learning outcomes, and learning conditions variables that are created to achieve this result by each student [1: 108].

This approach was supported and developed by B. Bloom, who proposed to determine the abilities of students by their pace of learning, which is determined not by their diligence, but by the optimal conditions for each of them. B. Bloom studied the abilities of students in situations where time to study the material is not limited. He identified the following categories of students:

- incapacitated, who are unable to achieve a predetermined level of knowledge and skills, even at a higher cost of study time;
- talented (about 5 %), who often can do what everyone else can't handle;
- students, who make up the majority (about 90 %), whose ability to acquire knowledge and skills depends on the cost of study time.

These data formed the basis of the assumption that with the correct organization of education, especially with the removal of strict time frames, almost 95 % of students will be able to fully master the entire content of the course. If the learning conditions are the same for everyone, then most achieve only "mediocre" results.

Implementing this approach, J. Block and L. Anderson developed a teaching methodology based on the full acquisition of knowledge. The starting point of the method is the general attitude, which should be adopted by the teacher working on this system: all students are able to fully master the necessary educational material with a rational organization of the educational process [13: 45]. Next, the teacher must determine what is full mastery and what results should be achieved by all. Accurate definition of the criterion of full mastering for the whole course is the most important point in working on this system. This standard is set in a unified form using a hierarchy of pedagogical goals designed for mental (cognitive), sensory (affective) and psychomotor areas. Categories, goals are formulated through specific actions and operations that the student must perform to confirm the achievement of the standard.

Within the framework of the discussed technology, the construction of the educational process is aimed at bringing all students to a single, clearly defined level of mastery of knowledge and skills.

V. Bespalko, based on the work of J. Carroll and B. Bloom, developed the technology of criterion-oriented learning (COL), the main point of which is the idea that all students are able to learn the necessary learning material. To do this, they must be given the criteria of assimilation (standards). This technology (COL) is also called the technology of full acquisition of knowledge. In the literature both versions of the description of this technology are present – by V. Bespalko, and M. Klarin. Consider both options [1: 126].

The humanity of COL technology is that by varying the types of tasks, forms of their presentation, types of assistance to students, it is possible for all students to achieve a given level of mandatory criteria, without which it is impossible to further full training and personal development, entering the culture of modern society. According to the COL model, differences in learning outcomes may occur outside the general educational result for all, i.e. the general education minimum, over which the results of the next differentiated learning will be added [15: 8].

In addition to above mentioned, there are other approaches to this problem. Here are examples of the most famous didactic developments in line with the model of full mastery, which have become widespread in the practice of teaching primary, secondary and higher schools.

"Keller's Plan" (another name – "personalized learning system") – a system of individualized learning, created by American psychologist and educator F. Keller for higher education. Initially, the plan was developed in 1963-1964 by a group of American and Brazilian teachers led by F. Keller as a system of teaching psychology at the University of Brazil, and in 1968 it was proposed by the author in a generalized form as a general didactic system of higher education.

The main features of the "Keller plan":

• orientation of the system on full mastering of educational material, including the requirement of full mastering of the previous section as an indispensable condition of transition to the next;

• individual work of students at their own pace;

• use of lectures only for the purpose of motivation and general orientation of students;

• use of printed educational tips and advice for the presentation of educational information;

• current assessment of the assimilation of the material by sections of the course by the so-called proctors – teaching assistants from among graduate students or students who have mastered the course [19: 132].

American technologies of full mastering of educational material differ from those developed by well-known teachers-innovators and scientists-didactics of the former USSR – V. Shatalov, M. Guzyk, V. Tobolin, P. Yutsyavichene, E. Skovin.

Let's dwell in more detail on the technology of full mastering of the material by intensifying the educational process on the basis of schematic-symbolic models, the author of which is the Ukrainian teacher V. Shatalov [9: 78].

The starting point in technology is that all children are talented and all without exception are able to master the school program. The teacher's position is aimed at finding an individual approach to each child, to create conditions for the development of abilities inherent in each of them, to help the student develop themselves as a person to the best of their abilities. The essence of technology is the repeated study of educational material using schematic-symbolic models:

The technology of full mastering of educational material according to V. Shatalov is divided into seven stages:

• the first – a detailed, figurative and emotional explanation of the teacher selected paragraphs for the lesson (block of knowledge);

• the second – a summary of the training material on the reference poster;

• third – the study of reference signals on reference abstracts;

• fourth – work with the textbook and reference summary at home;

• fifth – written reproduction of reference signals on the next lessons;

• sixth – responses to reference signals, including tape;

• seventh – repetition and deepening of previously studied material.

Working with reference signals has clear stages and is accompanied by a number of other techniques and fundamental methodological decisions.

Among other things, V. Shatalov solved the problem of global step-by-step control of students' learning competencies. He applied combinations of constant external control with self-control and self-assessment, introduced step-by-step control of each, feasibility of requirements, open prospects for correction, publicity of results, absence of mark "two" and removal of fear of a low estimation.

Forms of control: written with the help of reference notes, independent work, oral questioning, silent questioning, tape, pair mutual control, group mutual control, home control, self-assessment.

Each grade that a student receives is recorded on an open table of knowledge acquisition. It looks like a student track record, and grades take on the value of a positive encrypted characteristic. The publication of such a description plays a huge educational role. A very important fact in this characteristic is that each student can correct any grade to a higher one at any time. This is the principle of open prospects. According to V. Shatalov, each assessment should be, first of all, an incentive, which must provoke a positive reaction of the student. Marks "two" cause negative emotions, conflict with the teacher, the subject [9: 118].

V. Shatalov's unique discovery in pedagogy was the reference notes. He dared to say "no" to the conventional, although he experimented with public education programs. Let us recall that his findings are a figurative, somewhat unusual short synopsis for each lesson with symbols, signs, keywords, and numbers. This made it possible to study the topic as a whole. As the author himself emphasized, the method of such annotation is not new, symbols, badges are the supports through which it is possible to reproduce what is read. You can remember some actual material faster and stronger by reference signals.

Technologies of full assimilation of knowledge include *I. Hrynenko's Technology of Creative Coding of Information* (TCCI) [8: 7].

TCCI – a means of organizing creative learning activities – consists of three interrelated methods (mind maps, AbReSa, concept) and provides three levels of information processing (creative representation of the content of the text, creative interpretation of the meaning of the text, creative extrapolation – development of the semantic idea of the text). It develops imagination, intuition and creativity.

Depending on the degree of information contraction, the teacher considers three types of mind maps:

• detailed – maximum representation of the text;

• schematic – presentation of key ideas of the text in a simplified and generalized form;

• symbolic – the maximum graphical contraction of information in the form of a symbol (figure) of dialectically opposite concepts.

The use of TCCI in the teaching of future teachers (students of secondary schools) of humanities involves three-level processing of the text (a work of language and creative process, characterized by completeness), which the teacher conducts during the study of the subject.

Level I: *creative representation* of the content of the text (information):

• coding and subsequent reproduction of text in pairs or groups with the help of individual or group (verbal-image / image-verbal) *mind maps*,

• reproduction of the text according to individual mind maps of classmates / groupmates, which develops intuitive thinking and enriches the cognitive experience of students;

• dramatization of the text through pantomime (arbitrary component of technology) – presentation (effective coding by J. Bruner) of a passage of a text through sign language (from sentence / phrase to gesture), which gradually removes internal insecurity, develops gesture culture and the ability to stand in front of the audience;

• compilation of a synthesized mind map of the educational text on the basis of individual maps;

• TKBKI level – creative interpretation of the meaning of the text (information):

• compilation of schematic (verbal-image or image-verbal) mind maps – the basis of writing AbRes;

• writing AbRes – academic and simplified;

• decoding pantomime (from gesture to sentence / phrase).

• level: creative extrapolation – development of the semantic idea of the text:

• writing a concept – dialectical development and interpretation of the semantic idea of the text;

• compilation of symbolic mind-map (the seventh step of the concept – sensory-coding) – the most concise synthetic pictographic representation, which reflects the dialectical nature of the semantic idea of the educational text (information);

• reflection on the semantic idea of the text.

AbReS (paragraph – sentence – word) – a method of a kind of triple annotation (of varying degrees of contaction) of the text / information / educational topic. The first stage is a paragraph of three sentences (the most concise interpretation of the meaning of the study material). The next is one complex sentence, which is a further contraction of the information of the mentioned paragraph. The third is a semantic idea (one word), which conveys the essence of the two previous stages of contraction of educational material. As a form of support for writing AbReS, a schematic mind map is made.

*Concept* (counterpoint septet – from counterpoint in music: the doctrine of the simultaneous movement of several independent melodies, voices that form a harmonious whole and septet – a piece of music for seven voices or instruments) – a method of dialectical unfolding of the semantic idea of the text (by analogy with the phases of creative process), which ends with a generalizing symbol – a graphic representation of the dichotomy of the semantic idea of the text. It makes it possible to reflect on the semantic idea of the text and its axiological values.

The first line of the concept is a problem (semantic idea) that needs to be solved (noun). The second and third lines – the qualities or properties of the phenomenon (adjectives and verbs). The fourth line – four or five words – a creative solution to the problem ("insight" – the interpretation of a semantic idea). The fifth line corresponds to the verification phase and is expressed by verbs (arbitrary number) or a short evaluation phrase. The sixth line is a philosophical generalization of the problem (another perspective of its vision). The seventh (final) line is a symbolic mind map like the well-known yin and yang – a s a binary of philosophical opposition. The concept involves going beyond the educational material to a higher level of generalization and reflection of the dichotomy of the semantic idea of the text [10: 97-101].

Technological in their nature are the mind maps by T. Busen – English scientist and psychologist [2-4].

The concept of mental maps is based on the idea of the principles of the human mind: associative (nonlinear) thinking, visualization of mental images, holistic perception (gestalt).

T. Busen's mind maps are an effective tool for structuring and analyzing information. It allows you to

reduce the time and simplify the process of learning, increase the degree of memorization of information [4: 93].

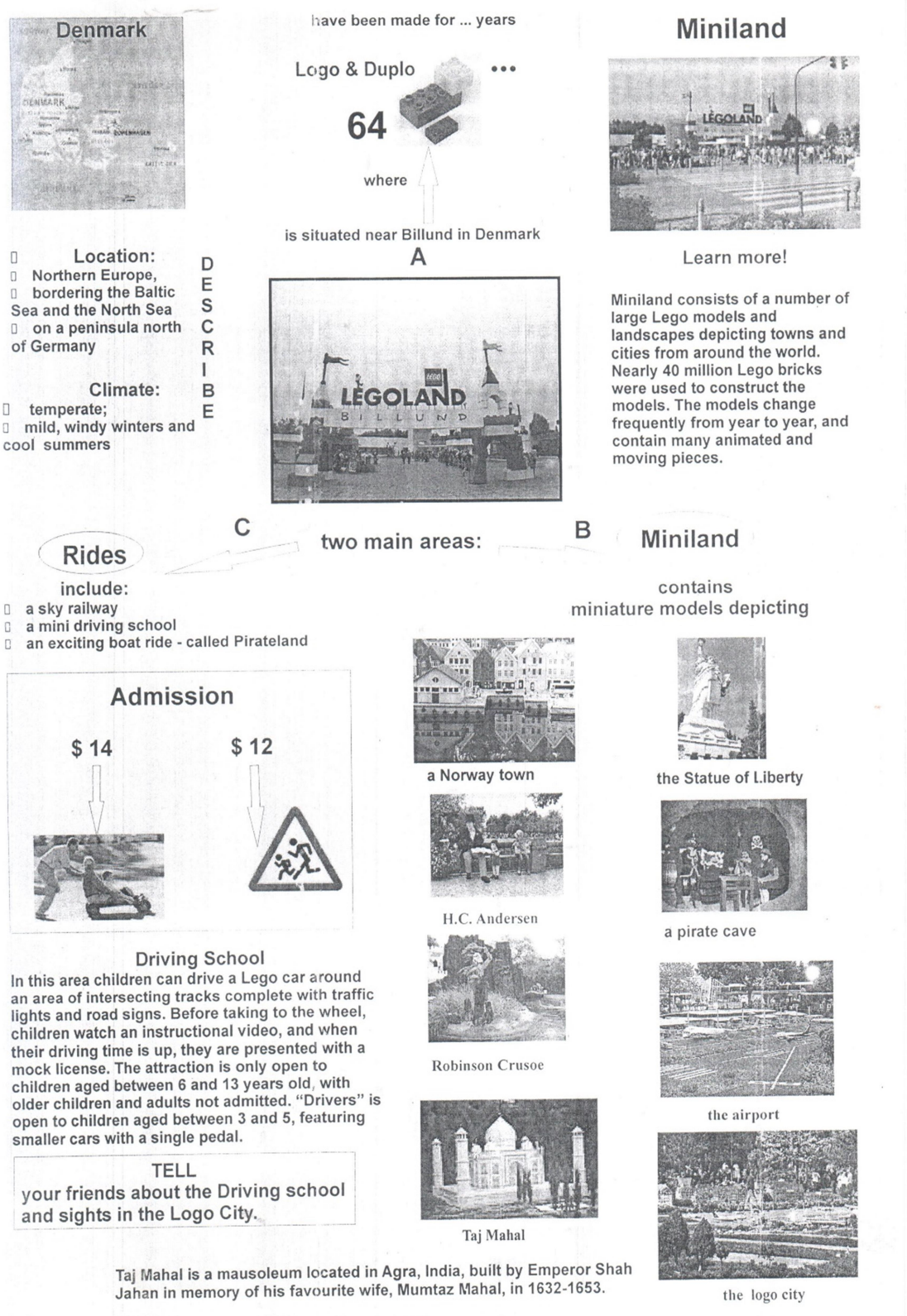


***Fig. 1. Mind map "Culture Time – Entertainment"***

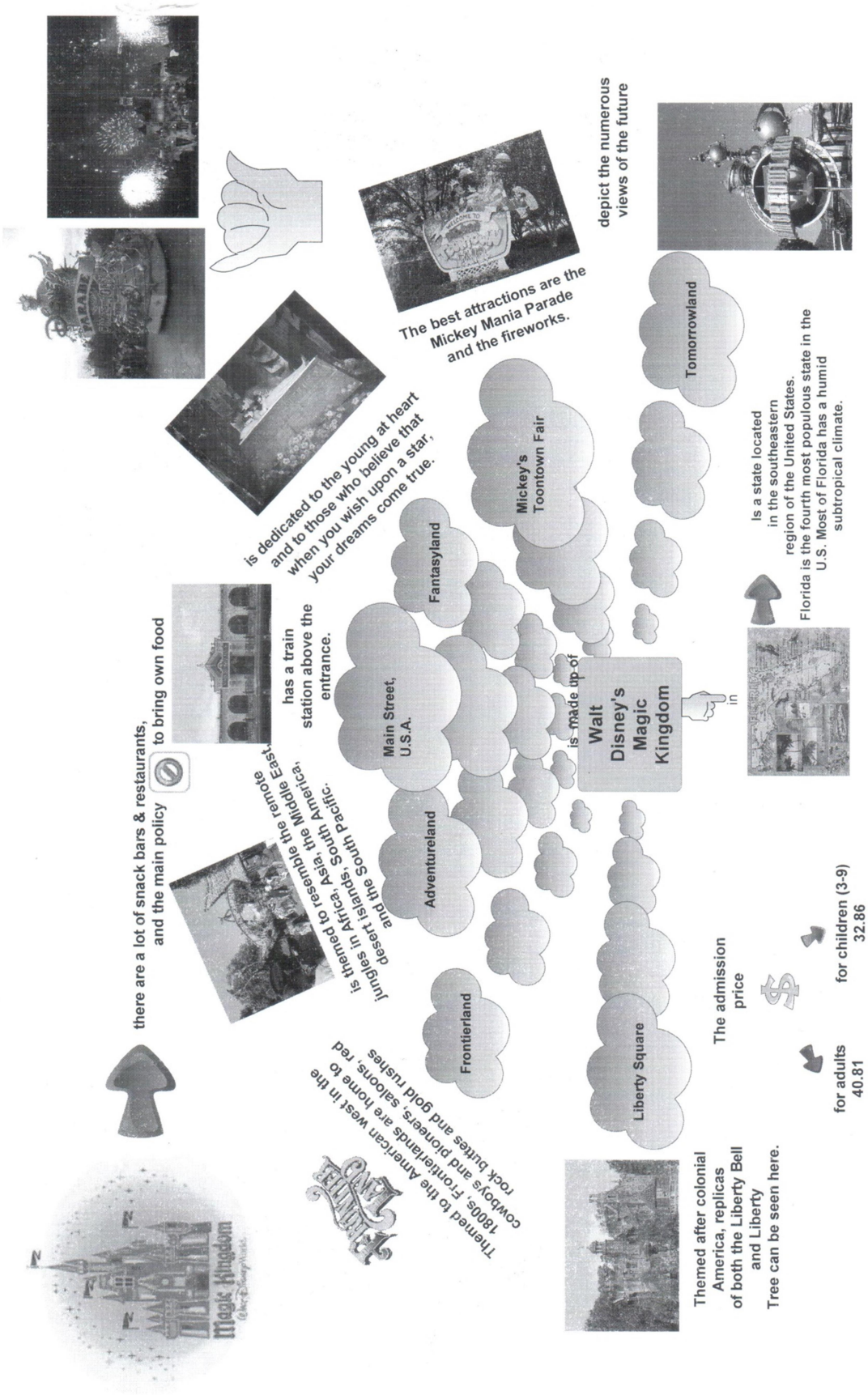


***Fig. 2. Mind map "Culture Time – Entertainment"***

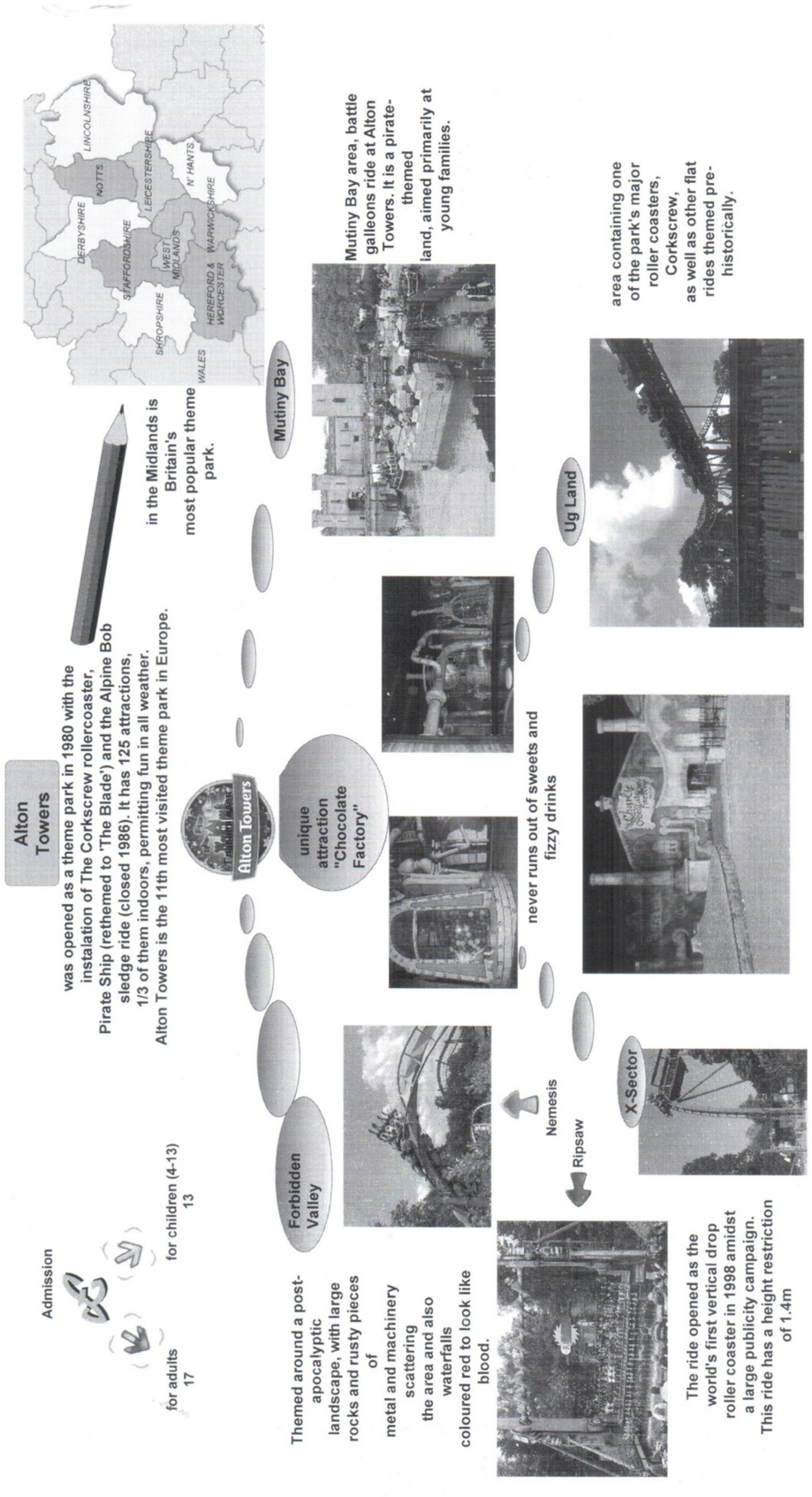


***Fig. 3. Mind map "Culture Time – Entertainment"***

Building a map begins with the central image – the task to be solved; an idea that needs development; the planning of the project to be done; information to remember. The central image is the "trunk" of the tree, from which the branches of decisions spread out. Several thick branches of this tree correspond to the basic ideas associated with the central image. Secondary ideas-associations depart from them. Lower-level associations, etc., "germinate" from secondary ideas. Thus, in the mind maps associativity and hierarchy of thinking is realized - from general to partial [4: 284]. An important feature of maps is their saturation with visual images and effects. In their preparation, color, font, drawings, symbols and abbreviations are actively used. They are drawn on sheets of paper (in landscape orientation) of A4 size or more. Colored pencils and felt-tip pens are used for drawing. Illustrations and symbols are used in the design. To show the relationship between the elements of the map, arrows are used – different in shape and color. If fresh ideas do not come – the map depicts empty branches and thus stimulate the brain to complete the picture. After the work on the map is finished, one should return to it after a while. T. Busen recommends the following time intervals: 10-30 minutes, 1 day, 1 week, 1 month, 3 months, 6 months [3: 115].

Based on all of the above, we conducted an experiment on the introduction of mind maps in the secondary school № 12 in Ternopil during February-March 2016.

The experimental training was attended by 22 students of 10th grade (control (CG) and experimental (EG) groups) – 11 students in each group. In EG training was conducted using mind maps. Traditional teaching methods were used in CG training. Both groups worked on the textbook "New Destinations.B1 +" and studied the same material. Four weeks later, after working on the topic of "Culture Time", all but two EG students completely reproduced the visual contours of the mind map (see Fig. 1, 2, 3) and conveyed the basic verbal information that the attention was drawn to during the study of the topic.

Thus, the theory and practice of compiling and using mind maps in foreign language lessons allows us to draw the following conclusions:

• one of the conditions for the effective use of mind maps in teaching English is the abundance of creative learning activities, which involve certain skills to structure, encode and compress educational information;

• The best environment for the use of mind maps is a creative climate in the classroom, which helps to unleash the creative potential of students, removes barriers to creativity and creates a state of inner balance.

**Conclusion and research perspectives.** Thus, the mentioned technologies of full assimilation of information contain high educational potential and are effectively used both in everyday life and in educational activities. In practice, mind maps can be used in many areas and spheres of activity. With their help you can plan your working hours and make responsible decisions, prepare important presentations and organize the archive of accumulated information, write tests and teach exam questions during the examination session. In addition, the mind map allows you to literally at first glance identify those issues in the visual sphere of which the associative chain of the student for some reason is broken. The teacher gets a clear and objective idea of the student's knowledge. In addition, it saves time, namely the time that normally goes to reading and evaluating traditional responses. Mind map is a direct application and form of graphical expression of radiant thinking. It is always built around a central object.

Each word and graphic becomes the centre of the next association, and the whole process of creating a map is a potentially endless chain of branching associations that depart from a common centre. Although the mind map is built on a plane, it is a three-dimensional reality – in space, time and colour. Radiant thinking is the natural and automatic way in which a person thinks. Also, it is noteworthy to mention that mind maps are one of the best and fastest ways to plan learning. Mind maps are an indispensable aid to the teacher in teaching the material and to the students in studying the material and preparing for the exams. In the circumstances, when students are overloaded with the educational information, application of effective means of its mastering, namely mind maps (technologies of full mastering of knowledge), which allow to fully master educational material in a concise, verbal-figurative form, becomes especially relevant.

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