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PLAY-BASED DEVELOPING COMPLEX FOR THE APPLICATION OF MANIPULATIVE GAMES IN ACTUAL TEACHING (PRIMARY SCHOOL)

The paper focuses on a play-based developing complex for the application of manipulative games in actual teaching in primary schools. The complex aims to strengthen modality-specific and motivational resources of the cognitive process through consolidation of motor and emotional memory.

Key words: manipulative games, game-playing competence, representative systems, motor memory, emotional memory.

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РОЗВИВАЛЬНО-ІГРОВИЙ КОМПЛЕКС, ПОБУДОВАНИЙ ДЛЯ ВПРОВАДЖЕННЯ В НАВЧАЛЬНИЙ ПРОЦЕС ІГОР-МАНІПУЛЯТИВІВ (ПОЧАТКОВА ШКОЛА)

Стаття присвячена розгляду розвивально-ігрового комплексу, який побудовано для впровадження в навчальний процес початкової школи ігор-маніпулятивів. Комплекс, спрямований на активізацію модально-специфічних та мотиваційних ресурсів пізнавального процесу за рахунок залучення моторної та емоційної пам'яті.

Ключові слова: дидактичні ігри-маніпулятиви, ігротехнічна компетентність, репрезентативні системи, моторна пам'ять, емоційна пам'ять.

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РАЗВИВАЮЩИЙ ИГРОВОЙ КОМПЛЕКС ДЛЯ ВНЕДРЕНИЯ В УЧЕБНЫЙ ПРОЦЕСС ИГР-МАНИПУЛЯТИВОВ (НАЧАЛЬНАЯ ШКОЛА)

В статье описан развивающий игровой комплекс, который создан для внедрения игр-манипулятивов в учебный процесс начальной школы. Комплекс ориентирован на активизацию модально-специфических и мотивационных ресурсов познавательного процесса за счет задействования моторной и эмоциональной памяти.

Ключевые слова: дидактические игры-манипулятивы, игротехническая компетентность, репрезентативные системы, моторная память, емоциональная память.

General problem overview and connections with important scientific and practical works. Modern tendencies of national education are aimed at activation and intensification of a student’s cognitive activities, his/her conscious mastering of necessary skills, development of his/her creative abilities,

ensuring advantages of independent knowledge acquiring, forming a position of a subject in learning and cognitive activities.

The search for ways of solving this pressing problem increases academicians' and lectures' attention to active-play technologies, among which didactic manipulative games deserve special attention. In comparison to other games with objects, manipulative games presuppose materialized form of an action with the help of teaching materials called manipulatives (from Latin *manipulation* – manual action) which are aimed at using manual actions with materialized objects (involving thereby, among others, students' motor memory being significant for junior schoolchildren and mainly ignored by teachers) this helps activate modal and specific, motivational resources of a cognitive process and emotional memory.

Overview of latest (last 5-7 years) research works and publications dedicated to the same problem the author focused on. The problems of drilling and using manipulatives in the form of structural and functional models during foreign language teaching have been analyzed in the papers of M.M. Hokhlerner, H.V. Eiler, L.V. Sheshniev, O.O. Zalizniak, L.M. Chernovatyi and others. They mainly studied practicing grammar models using algorithms. Graphical schemes sometimes acquired a materialized form of cards to perform various manipulations with [1-3]. The effectiveness of these cards has been actualized in the papers of Ukrainian scientist L.M. Chernovatyi who noted that the models of this type (i. e. structural and functional models) are visual and do not require any special efforts to be remembered. They are dynamic and capable of showing a structure transformation, it means that they let perform object actions with them, providing a change from material to ideal actions [4].

Delineation of unsolved regions and parts of the stated problem described in article. Drilling of structural and functional models for learning purposes during foreign language teaching has almost seventy-year history. It should be mentioned, therefore, that the models used in national and foreign didactics are quite simplified and are put into practice only in the form of cards. The disadvantages of these models have been thoroughly analyzed in the author's previous papers [5]. Furthermore, the relevance of the development and implementation of these models have not been revealed due to cognitive modalities of a personality.

Research aim definition. The aim of the paper is to reveal psychological as well as pedagogical features of a play-based developing complex for the application of grammar manipulatives in actual teaching.

Presentation of the basic material with comprehensive justification of scientific results. The author has designed Educational Game Technology

Grammar Manipulatives MASP (GM MASP). MASP is made up of the initials of the words model, algorithm, and speech pattern.

They are three elements which provide for students completely controlled and goal-oriented activity (Piotr Galperin).

This technology draws on Galperin's theory of a step-by-step formation of mental action, multiple intelligence theory, and neuro-linguistic programming.

The main body of this technology is grammar manipulatives MASP. GM MASP is a new approach to creative language teaching and learning. They are based on a new generation of language manipulatives – *dynamic* grammar manipulatives. Grammar manipulatives allow us to execute spatial manipulations while we are "building" the verb-forms. This procedure facilitates the material acquisition through activating motor memory.

The author has designed a play-based developing complex for the application of grammar manipulatives in actual teaching. The complex aims to strengthen modality-specific and motivational resources of the cognitive process through consolidation of motor and emotional memory.

The play-based developing complex covers manipulatives, subject-cards, other parts-cards, communication-matrix (the set of identification cards), picture-cards, tables, classroom-MASP activities, and teaching notes.

MASP-Tenses manipulatives. The grammar manipulatives given below have been developed for teaching tenses - MASP-Tenses. There are three types of GM MASP-Tenses: MASP-● (with a full stop for affirmative sentences) (fig. 1), MASP-not (with not for negative), MASP-? (with a question mark for interrogative).

GM MASP-Tenses are designed for learners at elementary level. It is an exciting method of language teaching that works well with individuals or small groups and may be employed effectively in large classes.

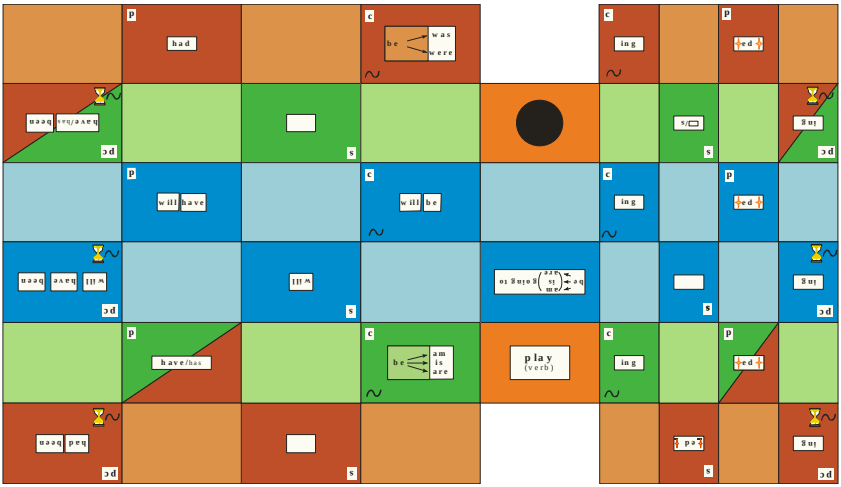

Fig. 1. Grammar manipulative structure (MASP-Tenses: MASP-●).

Manipulative structure. The manipulative structure is intuitively obvious.

Cards: 1 verb-card - central orange card with a written verb on it "play"; 12 auxiliary verb-cards; 12 ending-cards; 1 be going to-card (fig. 1).

To the right of the central card "play" there are 12 auxiliary verb-cards. To the left of the card "play" there are 12 endings-cards. They are used "to build" Continuous, Simple, Perfect, and Perfect Continuous Tenses (fig. 1).

Colour-based system. GM MASP-Tenses concentrate on three key structures. Each structure is consistently linked with a colour. The Present Tenses are green, the Future Tenses are light blue, and the Past Tenses are reddish-brown. Use these colours consistently so that students could quickly become familiar with them.

Symbol-based system. The symbols in the manipulative cards ("wavy" for the continuous tenses and "hourglass" for the perfect continuous tenses) strengthen this association (fig. 1).

The colour- and symbol-based systems of GM MASP-Tenses have been developed for identifying and using tenses. They also reinforce students' perception of grammatical categories through visual thinking.

Rows and Columns. The rows and columns of manipulative MASP-Tenses help students understand the way in which *time* and *tenses* are connected: *tenses are the verb-forms which show differences in time.* Students have to understand that rows refer to *time* and columns refer to *tense* (fig. 1).

Letter-based system. Abbreviations in the upper left corner of each card "C", "S", "P", "PC" are made from the initials of the words Continuous, Simple, Perfect, and Perfect Continuous (fig. 1).

The colour- symbol- letter-based systems are useful for making self-correction when students correct themselves instead of a teacher doing it. Involve your students in self-correction.

Built-in algorithm. The manipulation order is an algorithm of a verb formation: begin with auxiliary verb-cards and finish with ending-cards.

Remind students how important it is to construct the verb-forms, follow the manipulation order and focus their attention on the manipulative configuration, the colour-symbol-based systems, and letters.

Difficult English structures (tense forms and word order) are easily constructed with the help of manipulatives MASP-Tenses. They facilitate the acquisition of form "building" techniques; highlight the algorithm of sentence generation and favour conditions for language practice through developing grammar skills. They are successful-language-teaching focused. A liberal dose of fun and game is applied to the learning process.

See below how to make the present continuous tense with the help of manipulative MASP-Tenses (MASP-●).

Step 1. Verb-form formation exercise. It gives practice in a correct verb-form formation.

Example: Sue *is playing* tennis now.

To make the affirmative verb-form in the present continuous tense *(is playing)*, do the following steps (fig. 2.a):

1. Turn the three left columns clockwise.

2. Turn the three right columns anti-counterclockwise.

3. Use a paper clip to hold "be going to"-card and "will"-card (the back of it) together.

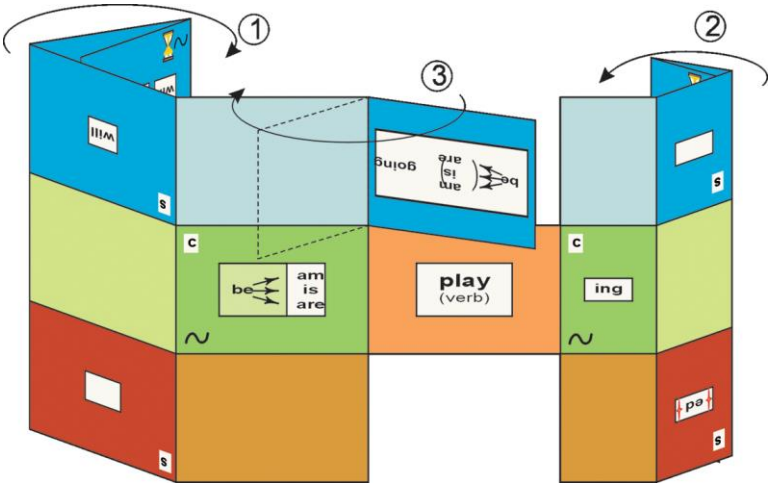

Fig. 2.a. How to make the present continuous tense.

The result of the manipulations with GM MASP-Tenses (MASP-●) is shown in (fig. 2.b). Use the colour- symbol- letter-based systems as a guidance to make self-correction.

1. The auxiliary verb-card and ending-card are green.
2. There is a "wavy" in in the manipulative cards.
3. There is a "C" in the upper left corner of each card.

You've got the verb-form (play) in the present continuous tense.

Simplicity and graphic clarity add to the merits of grammar manipulatives MASP-Tenses. You can easily see the object under study: *the verb form* and *word order*. A task is given to identify the known and unknown: *auxiliary verb* and *ending*. The sequence of pattern generation actions is represented by an algorithm which correct execution is guaranteed by the availability of control tools: *manipulative configuration*, *colour*, *symbol*, and *letter* correspond a correctly "built" verb-form. GM MASP-Tenses contribute to the development of language awareness cognition by making it necessary to analyse, deduce and construct patterns rather than use ready-made ones.

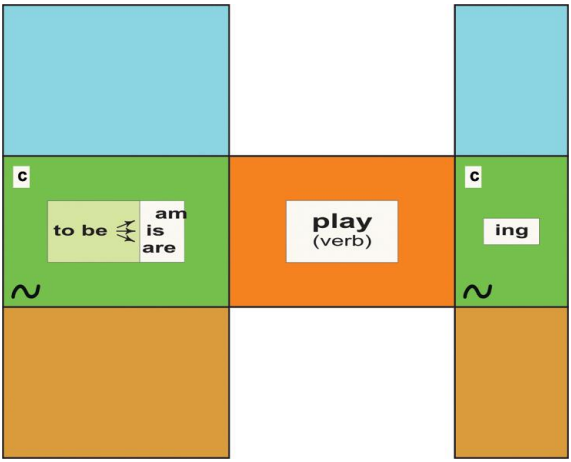

Fig. 2.b. The verb-form structure (play) in the present continuous tense.

Step 2. Sentence construction exercise. It gives practice in correct sentence structure. Manipulations below teach subject/ verb agreement in the sentence and use the correct ending when a verb is in the third person. This step needs "subject-cards" and "other parts-cards" which are useful for improving writing skills among other things.

To make the sentence in the present continuous tense (Sue *is playing* tennis now), do the following steps (fig. 3):

1. Place the subject-card to GM MASP-Tenses (MASP-●). Turn up the subject-card and on the back of it write "Sue".
2. Place the other parts-card to GM MASP-Tenses (MASP-●). Turn up the other parts-card and on the back of it write "tennis now".
3. Choose the appropriate form of the verb "be" (is) and use a red marker to circle the correct form (is).

The result of the manipulations with cards and GM MASP-Tenses (MASP-●) is shown in fig.3).

subject	auxiliary verb	verb + -ing	other parts
Sue	**is**	**playing**	*tennis now.*

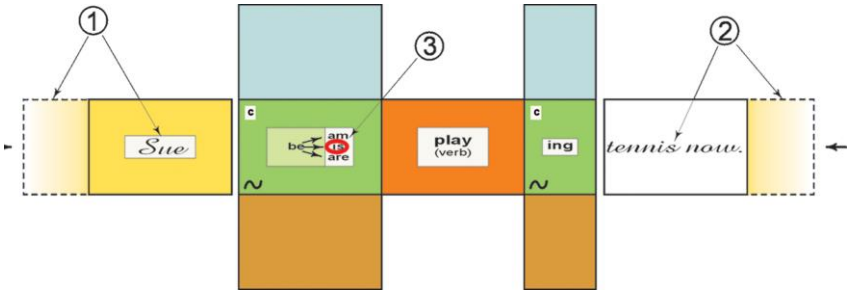

Fig. 3. The word order of the sentence «Sue is playing tennis now».

The great thing about GM MASP-Tenses and cards is that they show how the parts of a sentence are related.

Manipulations with cards and GM MASP-Tenses (MASP-●) show that word order is not complicated, and can be reduced to a few basic rules. 1. In a normal sentence, the subject of a sentence comes directly in front of the verb. The direct object comes directly after it. 2. Other parts come in specific places. If students always apply these simple rules, they will not make too many word order mistakes in English. The example above is deliberately simple - but the rules can be applied even to complex sentences.

Grammar manipulatives have been designed to help students develop their grammar skills. Practice the manipulative techniques until grammar skills become stronger, more advanced and automatic - without thinking. You know something that is automatic always happens as a result of something you have done, especially because you have done the same thing many times before. Understanding English grammar leads to better verbal communication, writing and reading

Step 3. Matching exercises.

Communication Matrix. The play-based developing complex has a communication matrix (the set of identification cards). The aim of this communication matrix is to provide a thorough "coverage" of the different aspects of the structure: form and meaning-in-context. It gets students to perceive the structure - its form and meaning. Students use both structural awareness and knowledge expression. Students can improve their written and spoken accuracy having a good grasp of the relationship between time expressions and tenses.

The communication matrix is also useful for training memory and checking speech patterns understanding. The matrix allows students to memorize about 50 cases when tenses are used and 200 time-expressions.

Exercise A. Match the time-expression "now" to the identification-cards (№l-№4) (fig. 4). Card №1 (at the time of speaking) is used for "now" to ex-

press the idea that something is happening *now*, at this very moment. Card №2 (calendar) is used for "every day/ every morning etc." to say how often we do things. Card №3 (dice) is used for "3 letters today", "3 times this week" to say how much we have done, or how many things we have done, or how many times we have done something. Card №4 (hour-glass) is used for "since 2 o'clock", "for 3 hours" to say how long something has been happening.

This matching exercise increases awareness of relationship between time-expressions and tenses.

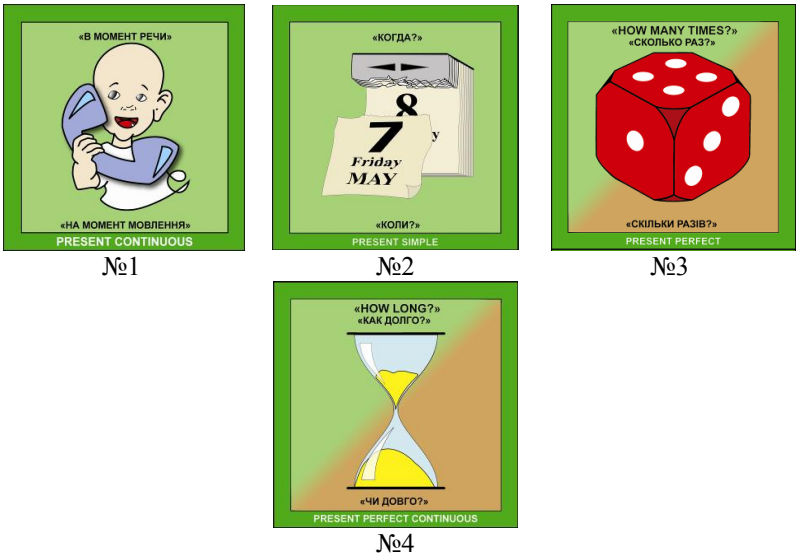

Fig. 4. Identification cards «Present Tenses».

Step 4. Matching exercises.

Exercise B. Match the sentence "Sue is playing tennis now" to the set of picture-cards (fig.5).

The play-based developing complex has the set of picture-cards (Mr. Continuous. Mr. Simple, Mr. Perfect, and Mr. Perfect Continuous) (fig. 5). They are useful for children between the ages from 7 to 13 to identify tenses.

Mr Continuous

Mr Simple

Mr Perfect

Mr Perfect Continuous

Fig. 5. Picture-cards (Tenses).

Pictures for comparison of English tenses. The author has created the set of pictures to compare all the English tenses and classroom MASP-activities.

There are twelve basic tenses in the English language. The set of pictures for comparison of the English tenses covers the most common grammatical forms for expressing time in English and the different time expressions. The pictures explain in full detail how each of the tenses is used, and how they can be compared.

Classroom-MASP activities. Classroom-MASP Activities are *multi-purpose manipulative activities* which have been developed for grammar manipulatives GT MASP-tenses. They are a very simple, straightforward way to create manipulative games. The advantage of the eight activities is that the teacher can choose what exercises are the best for his/her students. At the last stage of the Classroom MASP-activities implementation the students are suggested tests. The students do tests in order to demonstrate to themselves and to the teacher how well they have mastered the material they have been learning.

The activities have one thing in common: they are student-oriented ones. They are referred to as "peer-interactive learning" approach which provides opportunities for the students to play (work) together in pairs, small groups, or teams. The students work together, exchanging information and learning to communicate better if they are presented with motivating manipulative games (classroom activities) in which they are personally involved. Manipulative activities give language practice a reality which purely verbal activities do not have.

The battery of game-oriented language teaching materials (manipulatives, cards, pictures) presents grammar material in a graphic, easy to grasp way: language is worked on through the eye (visual), the ear (auditory) and with move-

ment (kinesthetically). Language is presented in different learning styles. When students work with their hands, see colorful patterns, and talk to each other, they integrate more content [6]. Teacher is sensitive to each student's capability for learning English.

Teacher creates and uses positive emotions with the help of grammar manipulatives. Attention to emotional aspects leads to more effective English learning.

Conclusions. The play-based developing complex allows to take into consideration peculiarities and to use the possibilities of the kinesthetic representative system, to involve visual-acting and visual-graphic components of a cognitive sphere, to activate emotional memory [7; 8].

The research proved that the application of the play-based developing complex in teaching English improves teachers' and students' game-playing competence, as well as facilitates students' acquisition of both quality and speed aspects [9].

As a result of using didactic manipulative games in the process of mastering language disciplines, it has been proved experimentally that the students' indices of play-based competence have improved. These indices are the mobilization degree during solving learning and game tasks, the level of game skills development, the extent of training motivation, and the improvement of verbal material remembering in tactile and visual modalities, the learning effectiveness.

Further development prospective in the studied area. The aim is to develop comprehensive and challenging materials specifically aimed at students of primary school which will highly motivate them to achieve superior results. To formulate the principles and conditions, both psychological and pedagogical, for the effective application of manipulative games in actual teaching.

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