

требований, которые взаимосвязаны и взаимообусловлены. Руководствуясь строением этнопедагогической компетентности, принципы формирования этнопедагогической компетентности можно представить в трех группах: 1) принципы, связанные с компетентностной стороной этнопедагогической компетентности (принцип научности обучения этнопедагогике, принцип системности формирования этнопедагогической компетентности, принцип оптимального сочетания индивидуальных, групповых и коллективных форм организации учебного процесса; 2) принципы, определяемые культурологической стороной

этнопедагогической компетентности (принцип ведущей роли социокультурного контекста обучения; принцип связи содержания и форм обучения с национальной педагогической культурой, принцип рационального применения традиционных методов и средств обучения, принцип опоры на народное искусство); 3) принципы, соответствующие плоскости пересечения названных сторон (принцип междисциплинарной интеграции, принцип диалогичности в обучении, принцип дифференцированного подхода, принцип непрерывности профессионального роста, принцип информатизации учебного процесса).

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РЕЗЮМЕ. Ушбу мақола ўқитувчининг этнопедагогик компетенциясини шакллантиришнинг бир қатор тамойилларини белгилаш, шунингдек уларни гуруҳлаш бўйича таклифлар кўриб чиқилади.

РЕЗЮМЕ. В статье рассматривается определение ряда принципов формирования этнопедагогической компетентности учителя, а также предложения их группировки.

SUMMARY. This article discusses the definition of a number of principles for the formation of the teacher's ethnopedagogical competence, as well as proposals for their grouping.

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FEATURES OF THE APPLICATION OF THE THEORY OF INVENTIVE PROBLEM SOLVING IN CREATIVE TECHNOLOGY IN HIGHER EDUCATION

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Tayanch soʻzlar: ijodiy masalalar, informatsion texnologiya, kreativ taʼlim, kreativ jarayon, talabalarning qobiliyatlari, talaba yoshlar, ijodkorlik.

Ключевые слова: студенческая молодежь, информационная технология, креативность, креативное обучение, процесс креативности, одаренность студентов, творчество.

Key words: student youth, information technology, creativity, creative learning, creativity process, student giftedness, creativity.

Solving problems is not an easy science: a lot of strength is needed to solve a complex, good problem. And especial effort is necessary to find an innovative, creative solution.

Separate universal principles of many outstanding inventors required to be combined into a theory general enough to make it accessible and working for practitioners. One of these theories is the theory of inventive problem solving.

The theory of inventive problem solving is a scientific and practical direction for the development and application of effective methods for solving creative problems, generating new ideas and solutions in science and other areas of human activity. The development of the theory of solving inventive problems was started in 1946 by G.S. Altshuller and continues to the present (Fig.1).



Fig.1. Creative space and new technologies.

As you know, the methodology of subject education is based on a system of such consistently performed interactions as: the goal of education - the content of education - methodological teaching aids. At the same time, setting a new goal: teaching and educating creative students requires making adjustments to the content of education and teaching methods. There is a need to identify such psychological and pedagogical conditions that would also become a prerequisite for the full manifestation and development of the creative qualities of students. The development of students' creative abilities in non-standard conditions is an urgent problem for modern researchers [1, 2].

Creativity is the level of creative endowment, the ability to be creative, which is a relatively stable characteristic of a person. Creative learning contributes to the formation of a productive and creative orientation of the individual and is the main core of its social orientation in life. At the same time, the development of creativity in a student makes it possible to form the basis for his professional creativity and improve the creative potential of a young specialist, as well as contribute to his successful self-actualization in the social sphere.

One of the promising ways to develop the creative abilities of students of technical specialties is to solve inventive problems. As creative tasks, we consider non-standard tasks, with a partially algorithmic way of solving. Using the algorithm for solving inventive problems, they find the ideal end result for a given problem, identify technical and physical contradictions and eliminate them using special principles.



Fig. 2. Algorithm for solving inventive problems.

An algorithm for solving inventive problems is a complex algorithmic program based on the laws of development of technical systems and designed to analyze and solve inventive problems (Fig. 2)

It should be noted that small creative tasks, puzzle tasks, as well as tasks with an unknown algorithm were not used in the learning process, since they do not have the gnostic function necessary for studying technical disciplines. At the same time, the formulation of the problem, the parameters of the processes must be as close as possible to real, production conditions [3, 4].

The solution of a creative task is a system of actions based on creative thinking, which has an inherent mechanism of probability, chance, and therefore does not always lead to the intended goal. However, delays, returns to the starting position are normal attributes of educational creative activity that must be predicted, prepared for and overcome in advance. Modeling of educational creative activity should lead students to understand the significance of the task, motivate and mobilize them to obtain a positive result. Such activity not only forms the creative independence of students, but also strengthens their will and promotes self-organization. The solution of a creative task is associated with the mobilization of all the creative resources of students, and ultimately contributes to the development of their intellect.

The process of development of creativity is a long-term, continuous process, the most important stage of which is the period of education. It is also obvious that modern mass education is not yet able to provide conditions for the realization of the creativity of the individual in the process of education and upbringing. The habitual reproductive educational model continues to transmit knowledge, form reproductive skills and control their mastery. Of course, as a result, we get a certain percentage of creative students, in whose fate we happily agreed.

In teaching professional creativity, a special place is occupied by the theory of inventive problem solving. The theory of solving inventive problems is a scientific and practical direction, but the development and application of effective methods for solving creative problems, generating new ideas and solutions in science, technology and other areas of human activity (Fig. 3).



Fig.3. Theory of inventive problem solving.

The purpose of the technology of technical creativity is to train students in creative activity, to acquaint them with the techniques of creative imagination, to teach them how to solve inventive problems.

The main theoretical position of the theory of inventive problem solving is the assertion that technical systems develop according to objective, cognizable laws, which are revealed by studying large arrays of scientific and technical information and the history of technology. These laws can be used to improve existing systems and develop new ones.

The purpose of the technology of technical creativity is to train students in creative activity, to acquaint them with the techniques of creative imagination, to teach them how to solve inventive problems. Among the main features of the theory of inventive problem solving, the following can be noted. Using the laws of development of systems, on the basis of which the laws of development of technical systems and the methodology for their forecasting were developed. Identification and resolution of contradictions that arise during the development of systems. Of all the known heuristic methods, only in the theory of inventive problem solving, methods for searching, sharpening and resolving contradictions at different system levels have been formulated, techniques have been developed for resolving contradictions, a system of typical strong solutions.

Systematization of various types of psychological inertia and the use of methods to overcome it. Development of a systemic style of thinking and the use of special system operators.

A method of searching for resources - real, energy, information, etc., which allow solving a creative problem, making minimal changes to the system and ensuring easy implementation of the solution.

Structuring information about the problem situation, the use of special graphic methods. Special information and methodological support: methods of analysis and problem solving, graphical methods and diagrams, tables and indicators of the application of effects and phenomena [2, 3].

Another important condition for the development of students' creative abilities is to increase motivation. Encouragement of students to independent creative activity is always based on emotional and motivational principles. The success of solving the problem is largely determined by meaningful motivation.

Creatively thinking, creative specialists are already today considered on an equal footing with other important resources, such as finance, raw materials, and labor. In the conditions of the challenge of modernity - the highest competition and the global crisis, the task is to increase the competitiveness between countries for sales markets, and this requires improving quality, reducing costs and constantly improving production, and all these programs require a creative approach to their solution.

For the successful implementation of a creative education program, continuity among all parts of the educational system is very important: starting from preschool education, then close interaction between a general education school and, further, a higher educational institution, and for this all parts of the educational system need to be transformed and updated [5, 6].

The implementation of the concept of a creative system of continuous formation of creative thinking in the educational process of the university - the theory of inventive problem solving involves a significant breakdown of the traditional worldview of both students and faculty. At the same time, the training of teachers of a new formation, who own the methodology of professional creativity and the basics of computer support for thinking, is an integral part of the transformation of the educational process in a modern university.

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REZYUME. Maqolada ijodiy (kreativ) masalalarini yechish nazariyasining asosiy qoidalarini tahlil etilgan bo'lib, bu qoidalar ob'ektiv qonuniyatlar asosida rivojlanishi ko'rsatib berilgan, ularni texnologiyalar rivojlanishi tarixidagi ilmiy va texnik ma'lumotlarni o'rganish natijasida aniqlanishi ko'rsatib berilgan.

РЕЗЮМЕ. В статье рассмотрены основные теоретические положения теории решения изобретательских задач являющиеся утверждением, что технические системы развиваются по объективным, познаваемым законам, которые выявляются путем изучения больших массивов научно-технической информации в истории техники.

SUMMARY. The article considers the main theoretical provisions of the theory of inventive problem solving, which is the statement that technical systems develop according to objective, cognizable laws, which are revealed by studying large amounts of scientific and technical information and the history of technology, non-standard tasks are considered as creative tasks, with partially algorithmic solution.

ХАРБИЙ АУДИТОРИЯГА ИНГЛИЗ ТИЛИДА SCHWA /ə/ ТОВУШНИИ ЗАМОНАВИЙ УСУЛЛАР ОРҚАЛИ ЎҚИТИШНИНГ ЎЗИГА ХОСЛИГИ

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Таянч сўзлар: товуш, харф, Schwa товуши, нейтрал /ə/ унлиси, урғу, урғули бўғин, урғусиз бўғин.

Ключевые слова: звук, буква, звук Schwa, нейтральный /ə/ гласный, ударение, ударный слог, безударный слог.

Key words: sound, letter, Schwa sound, neutral / a / vowel, accent, accented syllable, unstressed syllable.

Кириш. Инглиз адабий тили вокализм тизими мураккаб характерга эга бўлиб, урғули ҳолатда 19 та фонемани, урғусиз ҳолатда 20 та фонемани ўз ичига олади. Унли фонемаларни урғули ва урғусиз ҳолатда сон жиҳатдан фарқланиши инглиз тили вокализм тизимини *урғули вокализм* ва *урғусиз вокализм* каби икки кичик тизимга ажратиб тадқиқ қилишни тақозо қилади. Инглиз тилида унлилар урғусиз ҳолатда *тўлиқ, ярим кучсиз* ва *кучсиз* тарзда воқеланади. Унлиларнинг сифат ва миқдор белгилари кескин камайиши туфайли бошқа товушга ўзгариши, шунингдек, кам ҳолларда ўзининг сифат ва миқдор белгиларини у ёки бу даражада сақлаб қолиши [2:47-58] каби ҳолатлар урғусиз унлилар талаффузида номуайян ифодани (utterance) юзага келтиради. Бу эса урғусиз унлилар талаффузини ўқитишда ўзига хос қийинчиликларни келиб чиқишига сабаб бўлади. Мазкур қийинчиликлар, асосан, “Schwa” термини деб аталадиган нейтрал /ə/ унлисини талаффузини ўқитишда юзага келади.

Асосий қисм. “Schwa” сўзи яхуди тилидан олинган бўлиб [5:32-68], тилшуносликда бу термин махсус фонемани англатувчи рамзий белги (символ) номи сифатида қўлланилади. Инглиз тилида Schwa термини фақат урғусиз ҳолатда учрайдиган нейтрал /ə/ фонемасини ифодалайди. Нейтрал /ə/ унлиси доимий кучсиз талаффуз қилинса-да, уни мукаммал ўзлаштириш ҳам назарий, ҳам амалий жиҳатдан бирдек муҳим аҳамият касб этади. Д.Жоунз [4:89], Г.П.Торсуев [3:103-104], А.А.Абдуазизов [1:1-14], Н.Н.Раджабов [2: 47-58] каби тилшунослар нейтрал /ə/ унлисини назарий жиҳатдан тадқиқ қилиб, унинг сўздаги ўрни ҳамда ёндош товушлар таъсири, шунингдек, сўз асосига қўшилган баъзи суффиксларда юзага келадиган вариант ва вариацияларини ўрганишган. Кетерин Морлей, Шерлий Хюстон, Жим Скрайвенер, Стасиа Леви кабилар эса Schwa /ə/ товушини замонавий ўқитиш усуллари борасида изланиб, ўзига хос усуллари тақлиф қилганлар. Жумладан, Кетерин Морлей нейтрал /ə/ ни ўқитишда “Тез диктант” (Fast dictation) усулидан фойдаланиш ғоясини илгари суради [7]. Унга кўра, ўқитувчи яқинда ўрганилган тил материалларидан ташкил топган тўрт ёки бешта гапни талабаларга одатдаги талаффуз тезлигида диктант қилади, ҳоҳловчи бир талаба мазкур гапларни доскага; қолган талабалар дафтарларига ёзиб олади. Ўқитувчи дастлаб талабаларни жуфт-жуфт бўлиб, ёзган гапларини муҳокама қилишини ва хатоларини тузатишни, сўнгра доскада ёзилган гапларни тўғри ёки нотўғри ифодалангани борасида фикр билдиришларини сурайди. Доскада ёзилган гаплар юзасидан талабалар

фикрини тинглагач, ўқитувчи уларнинг назаридан четда қолган хатоларни тузатади. Талабалар шу намуна асосида ўзлари ёзган гапларни яна бир қарра текшириб олишади. Шундан сўнг ўқитувчи доскадаги гапларни талаффуз меъёрлари асосида ўқийди ва талабалардан талаффузига кўра қайси сўзлар урғу олиши, қайси сўзлар урғу олмаслиги, қайси сўзларда ҳам урғули, ҳам урғусиз бўғинлар мавжудлиги, урғули ва урғусиз бўғинлар талаффузи қандай фарқ қилаётгани тўғрисида бир нечта саволлар сурайди. Талабалар берилган саволларга имкон қадар жавоб беришга ҳаракат қилишади. Бу усул жараёнида саволларга берилган жавобларни ўқитувчи томонидан тузатилиши ёки тўлдирилиши, тўлдирилган жавобларни таҳлил қилиш ва уларнинг ҳар бирини мисоллар билан изоҳланиши орқали нейтрал /ə/ унлисининг талаффузи ўзлаштирилади.

Шерлий Хюстон нейтрал /ə/ унлиси ҳосил бўлишида нутқ органларининг деярли иштирок этмаслигини ҳисобга олиб, уни “Дангаса товуш” (“The Lazy Sound”) деб атайди ва мазкур унлини ўқитишнинг “Нейтрал товуш билан ўқиладиган ҳарфлари тушириб қолдирилган сўзларни тўлдириш” (Word completion, with space for schwa representation), шунингдек, “Сўзлардаги нейтрал /ə/ товуши билан ўқиладиган ҳарфларни тағизга чизили орқали Schwa унлисини аниқлаш” (Find the schwa – highlighting it in words) каби усуллари тавсия қилади [9].

Жим Скрайвенер нейтрал /ə/ унлисини ўқитиш усулларида бири сифатида “Schwa унлили сўзлардан ташкил топган матнлар” (“De-schwaed texts”) усулини тақлиф қилади [8]. Унга кўра, ўқитувчи олдиндан уч - тўрт қатордан иборат кичик матн тайёрлайди. Матндаги сўзларда Schwa унлиси билан ўқиладиган ҳарфлар тушириб қолдирилади ва уларнинг ўрни уч нукта ёки чизикча билан кўрсатилади. Дарс жараёнида ўқитувчи мазкур матн намуналарини талабаларга тарқатиб, матнни ўқиш баробарида улар нукталар ўрнини Schwa унлиси билан ўқиладиган тегишли ҳарфлар билан тўлдириши, шунингдек, Schwa товуши ёзувда қайси унли ҳарфлар билан ифодаланаётганини аниқлаши лозимлигини тушунтиради. Талабалар бу машқни бажариш асосида Schwa товуши ёзувда турли унли ҳарфлар билан ифодаланганини мумкин эканлигини ўзлаштириб олади.

Стасиа Левининг фикрича, Schwa товушининг талаффузи етарлича ўрганилмаса, оғзаки мулоқотда инглиз тилини, хусусан, америка инглиз тили вариантини тушунишнинг иложи йўқ. Шу нуктаи назардан Стасиа Леви инглиз тилида гапириш