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FOSTERING CREATIVITY IN FUTURE TECHNOLOGY TEACHERS THROUGH TASK-BASED LEARNING

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Abstract: This article explores the development of creative abilities in future technology teachers through the use of task-based learning. It emphasizes the importance of creative tasks that encourage problem-solving, critical thinking, and active engagement. The study outlines a structured system of creative assignments designed to progressively enhance students' intellectual flexibility and practical skills, specifically within the context of costume design. By integrating interdisciplinary knowledge and promoting independent exploration, the approach fosters deeper understanding and innovation. The implementation of these methods at V.M. Shukshin Altai State University demonstrated positive outcomes, highlighting the effectiveness of creative tasks in teacher education.

Keywords: creative tasks, task-based learning, technology teachers, teacher education, problem-solving, creative thinking, cognitive development, costume design, interdisciplinary learning, educational methods, student engagement, independent study, creativity development, pedagogical experiment, instructional innovation.

Аннотация: В статье рассматривается развитие творческих способностей будущих учителей технологии через использование учебных задач. Подчеркивается важность творческих заданий, стимулирующих решение проблем, критическое мышление и активное вовлечение студентов. Исследование описывает структурированную систему творческих заданий, направленных на поэтапное развитие интеллектуальной гибкости и практических навыков обучающихся, особенно в области дизайна костюма. Интеграция междисциплинарных знаний и поощрение самостоятельного поиска способствуют более глубокому пониманию и инновациям. Внедрение данных методов в БПГУ им. В.М. Шукшина показало положительные результаты, что подтверждает эффективность творческих задач в подготовке педагогов.

Ключевые слова: творческие задачи, учебные задания, учителя технологии, педагогическая подготовка, решение проблем, творческое мышление, когнитивное развитие, дизайн костюма, междисциплинарное обучение, образовательные методы, вовлечение студентов, самостоятельное обучение, развитие креативности, педагогический эксперимент, инновации в обучении.

Annotatsiya: Ushbu maqolada kelajakdagi texnologiya o‘qituvchilarining ijodiy qobiliyatlarini topshiriqlar asosida o‘qitish orqali rivojlantirish masalasi ko‘rib chiqiladi. Mualliflar muammoni hal qilish, tanqidiy fikrlash va faol ishtirokni rag‘batlantiruvchi ijodiy vazifalarning ahamiyatini ta’kidlaydi. Tadqiqotda talabalar intellektual moslashuvchanlik va amaliy ko‘nikmalarini bosqichma-bosqich oshirishga qaratilgan ijodiy topshiriqlarning tizimli tizimi bayon etilgan, ayniqsa kiyim dizayni sohasida. Fanlararo bilimlarni integratsiyalash va mustaqil izlanishni rag‘batlantirish chuqurroq tushunish va innovatsiyalarga olib keladi. Ushbu usullar

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V.M. Shukshin nomidagi Altay davlat universitetida joriy etilgan bo‘lib, ijobiy natijalarni ko‘rsatdi va ijodiy vazifalarning pedagogik tayyorgarlikdagi samaradorligini tasdiqlaydi.

Kalit so‘zlar: ijodiy vazifalar, topshiriqlar asosida o‘qitish, texnologiya o‘qituvchilari, pedagogik tayyorgarlik, muammoni hal qilish, ijodiy fikrlash, kognitiv rivojlanish, kiyim dizayni, fanlararo ta’lim, ta’lim metodlari, talabalar ishtiroki, mustaqil o‘rganish, ijodkorlikni rivojlantirish, pedagogik tajriba, ta’limda innovatsiyalar.

INTRODUCTION

At the current stage of societal development, scientists note that in our rapidly changing era—characterized by the phenomenon of an information boom—the volume of human knowledge is increasing at a high rate within the structure of thinking. However, from the standpoint of mastering logical laws, the thinking process generally unfolds spontaneously. As a result, the productivity of students' cognitive, and especially creative, activity unfortunately lags far behind their potential capabilities and does not fully meet the demands of modern education. Many students are unable to apply knowledge in non-standard situations, lack creative thinking skills, and rely mainly on their memory. They struggle to answer problem-based questions even when they have textbooks and study materials at hand. They are poorly prepared for generalization and creative analysis.

Today, the issue of developing students' creative abilities in both the theory and practice of education is particularly pressing. This has led to the development of new didactic approaches in teaching—not aimed at the mere accumulation of knowledge, but at the purposeful assimilation (through the use of heuristically oriented teaching methods) of systems, concepts, patterns, and generalized structures that allow for a deeper understanding of the essence of a specific subject and, on this basis, the mastery of general methods for solving a wide range of problems.

The learning process can vary in the degree of effort, cognitive activity, and independence demonstrated by students. In some cases, it takes on an imitative, reproductive character; in others, it is exploratory, and sometimes even creative. The nature of the learning process directly affects its final outcome—the level of acquired knowledge, skills, and competencies.

MATERIALS AND METHODS

To see something in a new way—not like everyone else, and not like before—is a very challenging task. But it is something that can be taught, if the educational process is directed toward the development and refinement of students’ creative potential and abilities.

The success of education aimed at developing students’ creative qualities, as well as the factors that determine it, has been examined in numerous works by educators and psychologists such as G.S. Altshuller, I.P. Volkov, V.V. Davydov, I.P. Ivanov, D.B. Elkonin, and others. In contemporary psychological and pedagogical science, creativity is considered a relative concept—it can manifest not only in the creation of something fundamentally new that did not previously exist, but also in the discovery of something relatively new (for a specific field, time, place, or for the individual themselves).

The level of creativity is considered higher the more original the creative result is. Achieving a creative level of personality development can be regarded as the highest outcome in any pedagogical technology. Teachers must systematically and purposefully develop students’ flexibility and adaptability in thinking; persistently encourage processes of restructuring, shifting perspectives, and exploratory activity; teach them to reason, to approach problems

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flexibly, to think rather than memorize, to draw their own conclusions, to find new and original approaches, to achieve elegant results and beautiful solutions—so they can experience genuine enjoyment in learning.

To support this, learning material should be introduced not merely as descriptive content but "as containing a real problem." It can reasonably be said that creativity is, in essence, the process of solving creative problems.

When examining the issue of learners' creative abilities, authors of psychological studies place particular emphasis on problem-solving. A problem or task is the starting point—the initial link in the cognitive, exploratory, and creative process; it is in the problem that the first spark of thought is awakened.

In psychological literature, there have been several attempts to define the concept of a "problem" or "task." For example, A.N. Leontiev noted that a task is a situation that requires some form of action from the subject [3]. A task is also seen as a goal set under specific conditions that requires a solution [5]; a task is described as the state of an unbalanced system [2]; and a task can be understood as the search for those transformations necessary to obtain a final result from the initial data [4].

A creative task can be defined as a situation that arises in any type of activity or in everyday life, which a person perceives as a problem that requires the search for new methods and techniques (either objectively or subjectively unknown) for its resolution—possibly involving the creation of a new principle of action or technology. A creative task always stems from some kind of contradiction or a mismatch between the real and the required or desired state.

Traditionally, in standard education, truly creative tasks are mainly used as a means of diagnosing already developed creative abilities in students. However, our focus should be on the purposeful, teacher-guided development of these abilities through a specialized system of tasks. In solving such tasks, students should develop an interest not only in acquiring knowledge but also in the ways this knowledge is obtained.

Moreover, students come into contact with the aesthetic aspect of intellectual work when they learn to compare multiple solutions to the same problem—not only in terms of correctness and efficiency but also in terms of "beauty"—that is, simplicity, elegance, and conciseness.

RESULTS AND DISCUSSION

Any creative task should involve activities related to the study and rethinking of existing experience, analysis of prototypes and analogs, and transformation of initial data—including in combined or complex forms. Analysis shows that various situations can arise during the process of solving educational tasks. In particular, reproductive situations may occur, requiring students to apply previously known algorithms, methods, or techniques. Creative situations are also possible, which require resolving a certain dialectical contradiction. For students, overcoming such situations involves searching for new methods or means of activity, which simultaneously stimulates the development of their creative abilities.

Thus, in our view, a system of tasks aimed at developing creative activity should meet the following requirements:

1. encourage a creative approach to solving them;
2. create a problem-based situation;
3. clearly formulate the conditions of the problem task;
4. consist of multiple parts that involve step-by-step resolution;
5. allow for solution variability.

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V.I. Andreyev, reflecting on the essence of the concept of a "creative learning task" from a pedagogical standpoint, concludes:
"A creative learning task is a form of organizing educational material through which the teacher succeeds in creating a creative (problem-based) situation for students, directly and indirectly setting the goal, conditions, and requirements of creative learning activity, during which students actively engage their knowledge, skills, and abilities, thereby developing their creative potential." [1, p. 41]
Having examined the views of various researchers on the functions of educational tasks (R.A. Nizamova, V.G. Razumovsky, A.F. Esaulov, and others), we identify the following:

1. the development of skills for creatively applying knowledge;
2. the modification or advancement of knowledge levels;
3. the independent acquisition of knowledge;
4. the reinforcement of knowledge;
5. the practical application of knowledge;
6. assessment and control.

Various types of creative tasks should be used in the educational process, as switching between task types is a basic means of maintaining students' interest in learning—an important positive factor. A diversity of educational assignments contributes to more effective intellectual performance, greater durability of learned material in memory, and helps develop focus, attentiveness, and memorization skills.
Taking all of this into account, we have developed a collection of creative tasks focused on costume design. At the time of the study, an analysis of methodological literature revealed that no similar publications existed. All tasks are categorized by level of difficulty, in accordance with the existing theory of creative tasks, and cover the following topics within the discipline: technical modeling, prospective modeling (including style in costume, color in artistic costume design, and artistic systems of form creation in clothing), and visual illusions.
The collection is designed as a workbook suitable for both classroom use and independent study. The tasks are aimed at encouraging exploratory activity and the creative application of knowledge.
The collection concludes with crossword puzzles. Some of the crossword questions contain a wealth of information intended to broaden students' horizons and help them acquire new knowledge. Certain questions are deliberately repeated to reinforce key concepts. There are also questions for which students must independently study a number of topics to find the answers.
In accordance with the requirements for integrating educational material, the collection includes tasks that combine interdisciplinary knowledge (such as materials science, garment manufacturing technology, and costume history) and types of activities aimed at creating new, generalized results. This approach helps convince students that the core theoretical principles of the subject and their skills can be applied to solving many real-life problems.
To assess some previously acquired knowledge, first-level tasks are offered, in which students must apply and reinforce the knowledge they have gained (traditional learning). Solving these tasks involves mentally considering only a few generally accepted and obvious solution options. In these cases, the object itself does not change. For example, a first-level task in technical modeling might present a model of a shoulder or waist garment along with a pattern of its basic templates. Students need to draw the necessary modification lines, indicate the required actions with arrows and words to achieve the desired shape, and depict the process of creating working patterns. To perform these actions, students must analyze the given model, identify differences

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from the base model, and select the appropriate technique from existing modeling methods—such as dart manipulation, shifting main construction lines, parallel and radial spreading of garment parts, or creating a new cut by assembling parts of the construction blocks—and illustrate its application. This final stage requires engaging imagination and a sense of form. Crossword puzzles also belong to first-level tasks.

Second-level tasks require some (minor) modification of the object in order to achieve the desired effect. The number of options to consider in such cases is measured in dozens. For example, a second-level task related to artistic systems of form creation might present three garments, two of which share characteristics that group them into a set. The third garment is shown only as a silhouette. The student needs to develop this third garment into the third component of the intended set. In this case, new knowledge is gained through the process of solving the task: by analyzing the depicted garments, the student determines why two of them are called a set rather than a collection or ensemble. Based on these conclusions, they then decide how to design the third garment. Thus, the new information is embedded directly within the task conditions.

The correct solution to third-level tasks is hidden among hundreds of incorrect ones, since the object being refined must be significantly altered. For example, students may be asked to transform a shown stage costume into a formal dress by using color, texture, and embellishments. The student needs to creatively approach this problem based on theoretical knowledge. There is no single correct solution here. The choice of color, texture, and additions depends on the student's imagination, creativity, and originality.

In fourth-level tasks, the object to be improved is changed completely. For instance, students may be asked to create a costume for an "avant-garde" professor who lectures at a prestigious university. The starting point is a classic black three-piece men's suit. Upon analysis, it is concluded that this suit is not entirely convenient for a lecturer working at a board. The object must be changed, possibly completely. How much it will be changed depends on the student's ability to break away from stereotypical thinking.

At the fifth level, solving tasks is achieved by changing the entire system that includes the object being improved. For example, creating a colored sketch of a pediatrician's costume while considering the psychological impact of color. To accomplish this task, it is necessary to move away from the traditional idea of medical uniforms. Since the specialist in question is very specific, the color solution is expected to be somewhat unconventional.

CONCLUSION

The gradual increase in task complexity deepens students' independent work with the educational material, encourages a broader selection of methods, and so on. The development of students' active creative thinking is guided by appropriate instructions and recommendations from the instructor. At the same time, students are expected to independently develop ways to solve and complete the tasks.

The proposed tasks and crossword puzzles can also be used as tests to assess knowledge of the studied discipline. The developed collection of creative tasks was implemented in the educational process at V.M. Shukshin Altai State University (BPSU) in the training of future technology teachers. The positive results of the pedagogical experiment confirmed the validity of our hypothesis that setting and solving creative tasks promotes the formation of creative activity and, consequently, makes the training process for future technology teachers more effective.

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REFERENCES:

1. Andreyev, V.I. Dialectics of Education and Self-Education of a Creative Personality: Fundamentals of the Pedagogy of Creativity. — Kazan: Kazan University, 1988.
2. Ball, G.A. Theory of Learning Tasks: Psychopedagogical Aspect. — Moscow: Pedagogika, 1990.
3. Leontiev, A.N. Activity, Consciousness, Personality. — Moscow: Politizdat, 1977.
4. Nizamov, I.M. Formation of Cognitive and Practical Skills in Schoolchildren: Educational and Methodological Guide. — Ufa: Bashkir State Pedagogical Institute, 1991.
5. Safin, V.D. Introduction to Psychodiagnostics of the Schoolchild's Personality. — Ufa: BGPI, 1990.
6. Solovyova, I.B. Costume Design: Collection of Creative Tasks. — Biysk: Research and Educational Center of V.M. Shukshin Altai State University, 2004.