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ANALYTICAL, CRITICAL AND CREATIVE THINKING DEVELOPMENT OF THE GIFTED CHILDREN IN THE USA SCHOOLS

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Teachers of the gifted students should not only make an enrichment and acceleration program for them but also pay attention to the development of analytical, critical and creative thinking skills. Despite great interest for this issue in the last years, the topic of analytical and creative thinking is poorly considered in the textbooks for the gifted. In this article some methods, materials and programs of analytical, critical and creative thinking skills development, which are used in the USA, are described. The author analyses and systematize the methods and also suggests some ways of their usage in the Russian educational system.

Purpose: to analyze and systematize methods, materials and programs, that are used in the USA for teaching gifted children analytical, critical and creative thinking, for development of their capacities of problem-solving and decision-making.

Methods and methodology of the research: analysis, comparison, principle of the historical and logical approaches unity.

Results: positive results of employment of analytical, critical and creative thinking development methods were shown in the practical experience of teaching and educating gifted children in the USA educational system.

Results employment field: the Russian Federation educational system: schools, special classes and courses for the gifted children.

Keywords: gifted children education; the USA educational system; critical thinking, analytical thinking, creative thinking development.

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РАЗВИТИЕ АНАЛИТИЧЕСКОГО, КРИТИЧЕСКОГО И ТВОРЧЕСКОГО МЫШЛЕНИЯ У ОДАРЕННЫХ ДЕТЕЙ В ШКОЛАХ США

Куварзина А.Ю.

Учителя, обучающие одаренных детей, должны не только составить для них обогащающую и ускоренную программу, что и уделить внимание развитию критических и аналитических способностей. Несмотря на большой интерес к этой стороне обучения в последние годы, на самом деле в учебниках и программах для одаренных детей критическому и аналитическому мышлению уделяется мало места. В данной статье описаны методы, материалы и программы, которые используются в США для обучения одаренных детей аналитическому, креативному и критическому мышлению, развития способностей принятия решений и решения проблем. Автором проводится анализ и систематизация этих методов, а также предлагаются пути их использования в российской образовательной практике.

Цель: анализировать и систематизировать методы, материалы и программы, которые используются в США для обучения одаренных детей аналитическому, креативному и критическому мышлению, развития способностей принятия решений и решения проблем.

Метод или методология проведения работы: анализ, сравнение, принцип системности, единства исторического и логического подходов.

Результаты: выявлены положительные результаты применения методов развития аналитического, креативного и критического мышления в обучении и воспитании одаренных детей в образовательной системе США.

Область применения результатов: образовательная систем РФ: школы, специальные курсы и классы для одаренных детей.

Ключевые слова: обучение одаренных детей; образовательная система США; развитие аналитического, креативного и критического мышления.

One common trait that differentiates gifted students from others is their capacity to perceive information and use it productively. Their analytical skills are evaluated in the various cognitive ability instruments, compare, analysis, synthesis tests, tasks to classify objects etc. Since these children analyze information quickly and productively, they are able to learn quickly and productively as well.

The purpose of thinking skills teaching is not merely to reproduce knowledge, but to create and grow in cognitive abilities of students. These were the ideas of the first programs for gifted children and then they influenced teaching methods of all categories of the learners.

Thinking skills contributes to some types of intellectual activities, that means that these skills are involved in reading, problem solving, creativity and other forms of thinking. It is more than a technical skill or practice, it is on what good contemplation, examination, reflection, study, decision, resolution, evaluation and other types of reasoning are based [15].

Most thinking skills develop in the first few years of a child's life, which proves the importance of different interactions with parents, grandparents, caregivers and other adults. Because children's mental development is highly correlated with the complexity of language in their development, it is not surprising to see a decline in development in homes where passive television watching and minimal time for conversation in the norm [10].

Teachers also shape children's thinking through effective instruction and classroom climate [14]. Teachers must have a deep respect for students, listen to them to understand their ideas, value their effort to think by allowing time for it, encourage open discussion and active learning, accept errors and give supportive feedback [16].

During the 1970s and 1980s, investigations into the thinking processes of gifted children led to the question of whether instruction in thinking skills was needed. Gifted children are superior in their thinking and it was often that characteristic that prompted identification of a child as gifted [2;13;17]. More recently, attention has

been focused on how thinking varies among individuals. Shore and Kanevsky (1993) reported seven ways in which gifted individuals differ in their thinking processes:

1) They have more extensive knowledge and use it more effectively;

2) They use metacognition more often and more efficiently;

3) They spend more time on the cognitively complex parts of problem solving and then quickly solve and report solutions;

4) They are flexible in choosing strategies and points of view;

5) They enjoy and create complexity and challenge around their tasks [12, pp. 137-139].

Sternberg considered how thinking styles influence the identification of children for gifted programs and the methods used in those programs. He used the metaphor of mental self-government to explain their theory: the legislative creates, imagines and plans; the executive function implements; the judicial function evaluates. Sternberg believed individuals favor one of these functions over the others and that it matters how thinking develops [14].

In the last two decades, researchers began to study cognitive science and development deeply. [2;4;14], and emphasis is made on improving curriculum for gifted students through thinking skills. The idea of higher level thinking has become central for gifted children programs, and moving students into the more advanced skills such as those of Bloom's taxonomy (1956) was the goal. According to Bloom's Taxonomy (1965), meaningful analysis involves many knowledge- level skills:

1) Knowledge of the ways of organizing, studying, judging and criticizing ideas and phenomena;

2) Knowledge of presenting ideas;

3) Knowledge of the processes, directions ad movements of phenomena with respect to time;

4) Knowledge of classes, sets, divisions and arrangements which are regarded as fundamental or useful for a given subjects field, purpose or problem.

Students should do less comprehension and repetition tasks and more analysis, synthesis and comparison tasks. Later the Taxonomy became the basis for all gifted children's programs.

Leaders in the field of gifted education identified the principles of instruction: including more complex and abstract concept-based curriculum, in-depth investigations, problem solving, decision making, reflection [3; 16]. These demands more integrative and productive kinds of thinking.

Decision which approach to use should depend on the type of gifted children educational approach: homogeneous or heterogeneous class, clusters, mixed-ability classrooms. The three approaches in the teaching of analytical and critical thinking, include:

1) Teaching thinking processes directly in a structures course or separate lessons;

2) Infusing analytical and critical thinking into content instruction;

3) Using methods that promote thinking about content learning [Swartz, parks, 1994].

These approaches have proven their efficiency in gifted education classes. In the first approach two formats are commonly used: 1) separate courses with a clearly developed structure and objectives; 2) teaching thinking skills as a separate lesson.

The program used Building Thinking Skills plan, developed by Black and Parks in 1985, which includes figural and verbal lessons that develop key analysis skills: compare and contrast, sequencing, classification, analogy. The lessons are built by increasing complexity and provide cognitive stimulation for learning-disabled gifted students. It can be evaluated with cognitive skills tests or the Standford Achievement Test.

Critical thinking instruction a separate course usually involves teaching logic, ethics and aesthetics. Such books as Critical Thinking Book (Harnadek, 1976), Philosophy for Children (Lipman, 1979) are still popular and are widely used in schools.

Analytical and critical thinking instruction has three common features: 1) is has cross-disciplinary objectives and nature; 2) it is structured; 3) is relies on class discussion. Thinking courses are used primarily in recourse rooms or enrichment centers because of their versatility across the curriculum.

Thinking skills direct instruction programs means single courses or cross-disciplinary lessons including non-academic tasks. The infusion approach involves the clarification and application of thinking processes within content lessons. It involves structured questions to form various kinds of judgments, graphic organizers and other forms of building thinking skills. Depicting the decision-making process, the graphic organizers displays evidence for or against, possible consequences so that students could better understand the process.

Unlike separate courses of teaching thinking skills, the infusion approach involves restructuring lessons to fully employ the thinking strategy. This approach is commonly used in homogeneous classes or clusters due to the depth of understanding and necessity for individual research. Enrichment units (global studies, anthropology, technology) are generally not included in the school program, therefore they are ideal for infusion lessons.

Using instructional methods to stimulate students' thinking is commonly used in gifted education. These methods includes using cooperative learning, graphic organizers, asking higher order questions, employing Socratic dialogue, using interactive computer software, engaging in inquiry, problem-based learning, etc. These methods may be used in any gifted education service model, however they are especially useful in heterogeneous classes and cluster-grouped classes. Such methods promote deep understanding of content for all students and may be used in individual research programs as well.

For more than twenty years , teachers of the gifted taught to ask higher level questions and conduct meaningful dialogues with the Junior Great Books Programm.

The books proved their efficiency in many research studies: Kelly, Murphy, Waters studied their influence on abstract and literal understanding of the texts; Bird,

Willok proved creative thinking improvement; Sondel proved writing skills improvement and Freitag and Chernoff proved that the childrens' self-assesment improves due to the possibility to change ideas in friendly environment [16].

Believing that thinking can be developed and strengthened, and understanding that advanced thinking skills require high-level instruction, teachers of gifted students create curricula that includes deep-thinking tasks. Scientists believe that the following categories of thinking should be included into daily teaching: critical thinking [1; 17]; creative thinking [8]; problem finding [10] and problem solving [13]; metacognition (understanding one's psychic function's) [15]; correlational reasoning and reflective inquiry [11]; questioning created for memory, divergence, convergence, aesthetics and ethics опросы для тренировки памяти, дивергенции, конвергенции, эстетики и этики [11]; inquiry and investigation [16]; dialectical thinking skills and Socratic discussion [7].

Evaluating complex thinking processes allows teachers to see how students understand and define problems and how they organize and interpret information. This is not a simple task that awaits research [6]. Teachers should not only model an instruction plan, but also evaluate children's answers correctly, and that demand special training [3]. Analytical thinking programs are usually evaluated with DCAT or RTCP tests, as well as writing skills quality which depends on thinking skills.

Swartz and Perkins [15] also recommended three planning for teaching thinking: a) direct instruction of a particular strategy; b) use of this strategy: c) infusion of the strategy in content-area lessons. They believe that infusion is the preferable mode, because it helps students develop and integrate effective thinking into both their academic and nonacademic lives. Good thinking development and use of thinking skills cut across all grade levels from kindergarten to graduate school, as well as across all subject areas of instruction. This gives many opportunities for uniting thinking skills materials and programs with the classroom content.

Shore and Kanevsky [12] pointed out the difficulty of researching thinking programs for the gifted, because this field needs classroom research to see how effectively the program works. They suggest following ideas for that:

1) Parents should form reflecting behavior for children, create atmosphere where the child will not be afraid to express his opinion, suggest discussions and value a child's pint of view.

2) In the classroom the emphasis should be made on rewarding thinking, inquiry, consideration of alternatives in lieu of memorization and drill.

3) Thinking skills should be taught within a context that is motivating for students. The methods should be included in all lessons and implied to all subjects. Students' thinking should be expanded into more complex, higher level mental operations by using questions , problems and conceptual issues. They need to build a strong knowledge and conceptual base from which to develop themselves. [16].

4) Teacher should be more attentive to their relations with children, answer their questions with more respect and less judgmentally. This requires listening and watching themselves teach, use self-assessment tools and training.

5) Evaluation methods, especially standardized tests to evaluate students' ability to think, should be developed. The answer in the test should not be chosen but built by students themselves.

Practical experience teaches that thinking skills that result in the creation of ideas and intelligent problem solving help gifted students develop their unique abilities. Yet, a lot of graduate young people only have memorization and recalling factual information skills, but lack proficiency in using that information to make judgments. Teachers, parents and school administration should find the ways to solve this problem.

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