



## The Role of the International PISA Program in Forming Students' Creative Thinking Ability in the Science of Biology

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### ABSTRACT

This article provides a general understanding of PISA, the role of the PISA program in students' lives, a creative approach to topics, and information about visual educational materials. Factors affecting students' creative thinking, importance of International PISA program in formation of students' creative thinking skills were analyzed.

### Keywords:

PISA, creative thinking, scientific literacy, test, competence.

Wherever man is, animals and plants are surrounded by the world. Biology is a very complex science, they study not only the species composition of flora and fauna, but also many concepts, definitions, laws based on experiments. It is the main task of a modern teacher to make such experiences interesting, scientific and informative at the same time, to increase the interest and activity of students in science. Currently, the main problem of the school is students' unwillingness to study. But in the process of the game, even the most passive student is included in the lesson, students can complete any difficult tasks. Philosophers have their own point of view about the game, they emphasize the following: "The game is a special form of student life designed or created by society to guide the development of students, in this sense it is a special is a pedagogical creation".

PISA (English - Program for International Student Assessment) is a program that evaluates the literacy and practical application of knowledge of 15-year-old students in various countries. This program is held once every 3 years. This program was originally developed in 1997 and was first used in 2000. The assessment system based on this program has

been conducted a total of 7 times (2000, 2003, 2006, 2009, 2012, 2015 and 2018) on the basis of random sampling, and the PISA results of 2009 and 2012 show that students' achievements in science literacy are at the bottom. . The next tests are scheduled to take place in 2021. In PISA, scientific literacy is identified and described on the basis of students asking questions, acquiring new knowledge, creative approach to the process, explaining and concluding scientific phenomena based on evidence. The main task of education is to form the skills that the student will need today and in the future to lead a successful life in society. Creative thinking is one of the most important skills for today's youth.

PISA uses a description of creative thinking relevant to 15-year-old students around the world. The development of the international program for the assessment of creative thinking will lead to positive changes in educational policy and pedagogy. The PISA assessment of creative thinking provides a clear, reliable, and actionable assessment tool that helps students make evidence-based judgments. The results also lead to the development of this important skill in the

community through education. This activity in the PISA program aims to support the new pedagogy of the Organization for Economic Cooperation and Development for the development of creative thinking. Nickerson recognizes that there are a number of school-related practices that stifle creative thinking, including:

1. the existence of the idea that there should be the only correct way to perform the task, the only correct answer to the question;
2. to promote the attitude of obeying and fearing influential people;
3. to follow the lesson plan in any case;
4. believing that originality is a very rare quality;
5. promoting the belief that knowledge is divided into separate fields;
6. disapproval of curiosity and thoroughness;
7. don't let learning and problem solving become fun activities.

Therefore, teachers can also hinder students' creative thinking. For this, pedagogues should avoid the above-mentioned factors that stifle creative thinking in the course of the lesson.

Collecting data on the complex array of facilitators of creative thinking in PISA is a difficult but doable task. PISA consists of two parts: a test and a questionnaire. The test part provides information on the basis of students' ideation, analysis and improvement. The questionnaire complements this information with information on other supporting factors of the student's creative thinking, including information on creative approach (openness, goal-oriented enthusiasm and confidence), perceptions of the school environment, school and extracurricular activities. Determination of scientific literacy is one part of the PISA program, which examines the competence of identifying problems that can be solved scientifically in life events, drawing conclusions based on observations and experiments. The main goal of this department is to understand the world around us, to understand the changes that occur in it as a result of human activity, to develop the ability to make the necessary

decisions accordingly, and to have a creative approach to biological phenomena. When determining scientific literacy, first of all, it is necessary to develop educational materials based on the PISA system and apply them to students. The applied educational materials should improve the learning process in the classroom and increase the activity of students. For this purpose, the training material consists of more practical exercises. Because practical training enriches students' knowledge, develops independent thinking and creative thinking. Visual educational materials are used to assess the knowledge of biology of 7th and 9th grade students in Greek schools and the following features are analyzed.

- Frequency of inclusion of visual learning materials in PISA and study guides
- Types of visual learning materials (pictures, diagrams, tables, etc.)
- The clear role of visual images in determining the knowledge that the student should acquire,
- Analyzing information in visual educational materials in a wide range
- Required answer format (graphical analysis, filling in tables,
- Following visual instructions, numerical responses).

Thus, the development of teaching materials related to the PISA program from the subject of biology and its application to the teaching process in improving natural scientific literacy leads to the enrichment of students' knowledge, the application of acquired knowledge in their lives, and a creative approach to biological processes.

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