

USE OF STUDENTS' LOGICAL THINKING ELEMENTS IN TEACHING ZOOLOGY IN HIGHER EDUCATION INSTITUTIONS

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Annotation: The article provides information on the formation of skills, independent thinking and the ability to apply them in practice by using the elements of logical thinking in teaching zoology in higher educational institutions.

Keywords: Categories, on interpretation, first analytics, second analytics, on sophistic refutations, topic, ancient East, intellectual

According to the Law "On Education" adopted in the Republic and the "National Program of Personnel Training", secondary special vocational education students acquire certain knowledge and special vocational skills. formation, the need for learning, independent and creative thinking, seminar, practical, laboratory and work skills, development of organizational skills, development of spiritual and moral qualities based on national and universal values, formation of a conscious attitude to the environment caught. It is also noted the development and implementation of effective forms and methods of spiritual and moral education of students and educational work.

Implementation of the above tasks applies to all subjects taught in higher education institutions.

Increasing students' logical thinking, teaching them topics in an interesting and scientific way, using elements of logical thinking in the course of the lesson will give effective results.

What is logical learning? To learn any subject, it is necessary to form logical thinking skills based on historical evidence. The first terms related to logic appeared in the countries of the Ancient East, in particular, in India and China. However, the Greek philosophers caused the development of the science of logic and its formation as a separate science.

Their formation was greatly influenced by the art of oratory, the development of mathematics, and so on. The reason why this science is called logic is that inner and outer speech is clear and solid

The science of logic is a set of laws that protect the human mind from errors.

The word "logic" is the Arabic translation of the Greek word "logos" in the dictionary. "Logikos" is related to the word "logos", which means "word, reason" and "reasoning", and is a concept that includes the meanings of words and reason

The word logic is derived from the Arabic word "laḡiq" and it also means "to speak", "thought, word" or "mind".

The formation of the science of logic as a separate science is related to its name. He was the first to define the range of issues studied by the science of logic. Aristotle's works entitled "Categories", "On Interpretation", "First Analytics", "Second Analytics", "On Sophistic Refutations", "Topics" are directly devoted to the issues of logic.

Aristotle defines logic as a science that "determines unknown knowledge from known knowledge" and "separates right opinion from wrong opinion".

How can we create a logical situation?

Logical means studying the educational material in such a way that cognitive tasks and problems similar to scientific research appear in the minds of students. In the students' thinking activity, problematic situations arise that encourage the search for and mastering of logically correct, scientific conclusions.

Any education is problematic for the student. Eastern pedagogues have given valuable opinions about creating a problem situation in the student's mind, active thinking activity of the student and thorough assimilation of the educational material. The thinker Abu Rayhan Beruni, in his didactic views, stressed that in the process of teaching and educating students, first of all, they should reflect on various topics, and the student should not get bored or stressed.

In the course of the lesson, presenting students with questions similar to the following logical questions will help children learn to connect topics and increase their logical thinking. As a result, we can increase students' interest in science, encourage them to independently search for additional information:

For example: Live birth is a type of reproduction in animals. In live birth, the embryo develops from the mother's organism, usually directly fed by the placenta, and is born from the mother as a slightly developed child, freed from the eggshell. In live births, the female organism develops in the genital tract, uterus (extended part of the genital tract), or vagina. In most animals, a fur coat (bag) is formed on the surface of the fur. Some gastropods, worms, onychophorans, some arthropods (scorpions),

gnats, molluscs, chordates, most sharks, flatfish, some carp, frogs, turtles, lizards, snakes, common to most mammals (except echidna, proechidna, duckbill) and humans. Some plants also give live birth.

In general, mammals reproduce by live birth, while fish, reptiles, and arthropods reproduce by laying eggs. Most representatives reproduce in the same way. How to explain the live birth reproduction of its exceptional representatives.

Can we say that the live reproduction of mammals and the live reproduction of the above-mentioned exception animals are the same?

While most species of snakes reproduce by laying eggs, some species give birth to their young live. In snakes that give birth to live babies, pregnancy lasts 2.5-4 months. Scorpions are animals that give birth without laying eggs, the young scorpions first come out on the mother's shoulder, but she does not feed the child, after a few days the little ones start to live on their own.

Live birth is when animals emerge from water onto land, the environmental conditions surrounding them, and the embryo developing in an egg, as in birds and reptiles, or in a special organ, as in most mammals, the uterus. In the first case, all the reserves of nutrients for development are in the protein and yolk of the egg, and in the second case, substances obtained from the mother's organism serve as a source of nutrition for the embryo. In this regard, the egg cell of many mammals lost the yolk a second time in the process of evolution and became very small. Development at the expense of the mother's nutrients causes the embryo to establish a strong connection with the mother's organism and give birth to a live birth. However, it should be noted that live birth is also characteristic of some representatives of benthic vertebrates (fish, amphibians, etc.). However, unlike mammals, in which the metabolism of the embryos takes place entirely through the mother's womb, the interaction of the embryo with the mother's body is much simpler in bottom vertebrates. The genital tract of the female is primarily the place where the embryo, which develops mainly due to the egg yolk, is carried out. For this reason, the egg yolk is large.

In conclusion, I can say that teaching young people to learn independently is one of the most urgent tasks of today. The reason for the great attention to personal development in the "National Personnel Training Program" is that only the maturity of the person and his intellectual intelligence can be a factor of the development of the

society. The intellectual intelligence of a person can be awakened, develop and ensure the perfection of a person only in the process of thinking logically about questions.

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