Journal of Education and Praxis Research. Volume 9, Issue 1, (2023) 38-41
http://www.cayley-nielson.com/jepr

Discussion on the Reform of Zoology Teaching Model to Improve Student Participation

Baiyin Yuan, Congcong Wang, Qiushuang Li, Ruifeng Xu, Xia Huang
Wuhan University of Science and Technology, Wuhan, China
College of Life and Health Sciences, Wuhan University of Science and Technology, Hubei, China.
E-mail: *yuanby@wust.edu.cn*

Abstract

Zoology, as a basic professional course for biology majors, has many and complicated knowledge points. The traditional classroom teaching method, which is mainly based on teacher lectures, lacks a strong connection between the knowledge points learned and life. Students often lack the interest and action to explore, and the classroom efficiency is relatively low. In order to improve students' classroom participation and make students become the main body of the class, the zoology classroom must be reformed. While increasing the interest of the zoology class, teachers should closely connect knowledge with life through curriculum design and apply what they have learned.

Keywords: Zoology, teaching reform, teaching model, student participation

1. Introduction

Zoology is a science that studies the structure and function, classification and evolution, heredity, development, physiology and relationship between animals and humans [1]. It is a basic course for various majors such as animal science, life science, and agriculture. The entire course focuses on basic knowledge about animal morphology, physiology, classification, evolution and ecology, as well as the application of this knowledge in agriculture, medicine, industry and national defense. Zoology, as a basic subject of various sub-disciplines, not only has extensive theoretical research content in the subject itself, but is also closely related to the practice of agriculture, forestry, animal husbandry, fishery, medicine, engineering and other aspects. The diverse and colorful animal kingdom not only provides valuable resources for human clothing, food, shelter, and transportation, but also provides rich content to beautify people's lives and meet their spiritual life needs. Therefore, learning and researching zoology is of great significance. As life science talents in the new era, they should have a solid foundation in zoology and be able to flexibly apply knowledge to life practice through the study of theoretical knowledge.

Nowadays, with the continuous development of technology, zoology teaching is in a very difficult situation. Teachers work hard to prepare and teach lessons, but because the knowledge system is complex and highly interoperable with other subjects, students will find it extremely laborious to learn, unable to figure out the clues, and unable to grasp the key points. Some students even think that the accumulation of a large number of knowledge points is boring and not very practical. They simply do not study the corresponding knowledge seriously and just cram in a temporary review to achieve the purpose of passing the exam. In this way, the teacher inevitably feels that there is nothing to use. Extreme melancholy has created a state of exhaustion for both teachers and students[2] .

ISSN 2378-9654 /
October, 2023

The reason why this situation exists is that on the one hand, students have not correctly understood the importance of zoology courses and that this course is inseparable from our life practice; on the other hand, because the design and guidance did not inspire students' enthusiasm for learning and exploration, and students' classroom participation was low. To fundamentally change this situation, the most important thing is to make students realize that zoology is closely related to our lives. The exploration of the world of zoology will bring students unique ways of thinking and insights.

In one of our questionnaires on teachers' teaching methods, we found that 78% of students chose interest-oriented options, and another 13% of students felt that it was most important for theoretical knowledge to be closely connected with practice. These data show that if teachers can use different teaching methods, such as multimedia presentations, actual anatomy operations, animation displays, student flipped classrooms, etc., to make the class more interesting and apply theoretical knowledge to daily life; it will be greatly stimulate students' inner interest in exploration, actively participate in class, and exercise students' ability to learn independently. Therefore, we are actively carrying out teaching reforms in the course of Zoology. Make use of students' interests and hobbies, give full play to students' subjective initiative, let students and teachers stand at the same level and jointly lead the classroom, jointly discuss and think about knowledge points, trigger students' independent exploration of the laws of animal life, and make students truly become part of the classroom as the main body, thereby activating the classroom atmosphere, making teaching fun, motivating students and teachers at the same time, and achieving the purpose of improving teaching quality[3] .

2. Explore the model and methods of Zoology teaching

2.1. Introducing PBL (Problem-Based-Learning) teaching model[4]

In the classroom, whether students can actively participate in course learning mainly depends on whether the introductory stage is interesting and attractive, and has the function of stimulating students' desire to learn. Therefore, teachers need to plan and set up the introduction stage in the actual teaching process. Teachers can set questions reasonably, use specific questions as a carrier to effectively introduce course knowledge, "anchor" learning on specific questions, and take "students" as the center, allowing students to clarify their learning direction under the guidance of questions. In addition, teachers' teaching and students' self-study are combined to stimulate students' enthusiasm for learning after class. Before class, the teacher will organize an outline of the main content for students to preview in advance. On this basis, he will also raise some discussion questions and require students to check the information and solve them before the next class. Display the results of the discussion to increase student understanding and learning of subsequent course content. At the same time, teachers can also effectively interact with students on problem-solving ideas based on the principles of discovery and exploration when setting questions. Creating a relaxed and natural classroom atmosphere through teacher-student interaction can also allow students to further diversify their learning ideas during problem thinking and interaction.

2.2. Introducing RBL (Resource-Based-Learning) teaching model[5]

Integrate subject curriculum learning objectives with information literacy to strengthen students' concepts and abilities of self-renewal, self-development and lifelong learning. Leave some current news, hot topics, scientific research trends related to zoology to students in advance, so that students can discuss in groups, fully explore and utilize various resources, and continuously collect, process and process, use resources and information to enable students to become active learners.

This teaching model helps students improve their thinking and creativity through active information exploration, discovery and experience. However, the RBl teaching model has higher requirements for teachers, requiring teachers not only to protect and develop rare learning resources, but also to teach students how to ensure the use of the most appropriate learning resources among the vast learning resources to support their own learning.

2.3. Construct situations to stimulate learning interest

In class, whether students are active largely on their interest in the course content. Therefore, what teachers need to do is to actively improve the classroom atmosphere, use some more advanced teaching methods to optimize and adjust the teaching situation, and do a good job in transforming course, through vivid display, students can have good carrier support for their thinking. At the same time, situations can also make students interested in course learning and in-depth analysis in a harmonious atmosphere, and strengthen students' learning motivation. Normally, teachers need to select appropriate situational materials, optimize the specific situational presentation methods, and present knowledge in the teaching materials that may be abstract to students through pictures, videos, or intuitive models. What's more, teachers can also innovate the presentation of knowledge in the classroom by introducing life cases to help students build good cognitive thinking.

2.4. Establish a connection between classroom knowledge modules and students to eliminate the unfamiliarity and fear of knowledge

Our questionnaire shows that 13% of students feel that it is most important for theoretical knowledge to be closely connected with practice. The main line of the zoology course is the diversity of animal groups, that is, the basic morphological characteristics, physiological functions, reproduction and development, evolutionary status, etc. of invertebrates and vertebrate groups. Simple invertebrates have little intersection with our lives, while multicellular vertebrate groups, such as amphibians, reptiles, birds, mammals, etc., are often encountered in our lives and are closely related to student life. The Latin scientific names of the representative animals of these animal groups can be linked to the students' names, allowing students to freely explore and choose animals that are close to their own names or feel connected with them, thus drawing closer the relationship between these animal groups and students. The distance makes students feel that these groups are no longer so distant and unfamiliar. Stimulate students' enthusiasm and initiative to take the initiative to understand and explore.

In addition, according to Charlotte Mason's natural learning ideas, students are allowed to raise some animals that are simple and easy to raise and manage. During the raising process, they can observe the animals' morphological characteristics, living habits, growth and development, life cycle, etc., which will allow students to understand animals more intuitively and concretely, and compare classroom learning knowledge with reality to strengthen, consolidate, and deepen knowledge. In this process of observation and exploration, teachers consciously expand students' ways of observation and thinking, and cultivate students' natural history thinking.

2.5. Allow students to participate in comprehensive performance assessment

Through curriculum reform, students' participation in the classroom has been greatly improved, for example, students participate in group discussion topics, self-exploration, observation, etc. in the classroom. Therefore, in the course assessment, the proportion of test scores should be reduced and the

proportion of assessments in aspects such as, homework, and natural exploration and observation should be increased. Students are also allowed to participate in the evaluation of daily performance. The daily performance of each class is determined by student self-evaluation, student peer evaluation and teacher evaluation.

3. Conclusion

There are many knowledge points in zoology, which are relatively boring. The interesting teaching is not yet mature enough. This means that teachers need to explore from all aspects to enhance the fun and practicality of the class, develop students' enthusiasm, and improve timeliness and efficiency of the zoology classroom, fundamentally break the limitations of traditional teaching methods. Only in this way can the zoology classroom become a happy classroom for students to learn independently.

References

[1] Russell AP. Situating and teaching 21st century zoology: revealing pattern in the form and function of animals [J]. Integr Zool. 2009 Sep;4(3):309-15.

[2] National Research Council (US) Committee on High-School Biology Education. High-School Biology Today and Tomorrow: Papers Presented at a Conference [J]. Rosen WG, editor. Washington (DC): National Academies Press (US); 1989.

[3] Cox SR. Technology to enhance in-class discussions and student participation at a multi-campus program [J]. Curr Pharm Teach Learn. 2019 Jul;11(7):719-722. doi: 10.1016/j.cptl.2019.03.010. Epub 2019 Mar 23.

[4] Dolmans DH, De Grave W, Wolfhagen IH, van der Vleuten CP. Problem-based learning: future challenges for educational practice and research [J]. Med Educ. 2005 Jul;39(7):732-41.

[5] Yip HK, Barnes I. Learning in dental education [J]. Eur J Dent Educ . 1997 May;1(2):54-60.