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The Exploration and Practice of Blended Teaching of Mosoteach in the Course of“The Universe and Life”

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Abstract: Mosoteach is one of the high-quality online platforms emerging in recent years.“Universe and Life”is a quality education school elective course for undergraduates.This paper firstly designs the overall course of“The Universe and Life”from the aspects of course nature and teaching objectives,teaching situation analysis,course content,auxiliary platform,etc.On this basis,this paper explores in detail the implementation of online and offline teaching based on Mosoteach.Finally,this paper summarizes the practical effect evaluation and existing problems of blended teaching based on Mosoteach.This paper provides some reference for the development of elective course based on Mosoteach.

Keywords: Mosoteach;Undergraduate teaching;School elective courses;Universe;Life;Astrobiology

At present,information technology has penetrated into the field of higher education,and many compulsory and elective courses in colleges and universities have realized the“Internet+”teaching model.Mosoteach has been widely used in the current education model[1].This paper intends to introduce the author’s online and offline teaching model based on Mosoteach by taking the school-elective course“The Universe and Life”offered by our unit as an example,in order to receive criticism and correction from peers and cast a brick to attract jade--offer a few commonplaces.

1. The Overall Design of the Course“The Universe and Life”

1.1 Course nature and teaching objectives

Astrobiology is a new interdisciplinary discipline pioneered in the United States[2,3],which is in the ascendant in developed countries such as Europe,the United States and Japan,while it is relatively lagging behind in China.The biological science professional teaching team of our unit has carried out the teaching of the school elective course“Universe and Life”online and offline based on Mosoteach.

“The Universe and Life”begins with understanding the basic characteristics of our universe and life,which guides students to explore the conditions for the formation of life and the formation process of life on Earth,follows the footsteps of human exploration of life in the solar system and deeper cosmic space,inspires students to cultivate a correct outlook on the universe and life,learn to respect life,love the earth and the environment,stimulates students’spirit of scientific exploration,and encourages students to devote themselves to astrobiology,a promising new interdisciplinary discipline,in the current situation where the development of astrobiology in China is relatively lagging behind.

1.2 The analysis of the students

This course was originally an elective course for undergraduate students majoring in science and engineering.But there is no selectivity in the course selection system.In fact,in recent years,students majoring in literature,politics,history,economics,managemen t,aesthetics,music and other majors accounted for more than 50%of students who learned the course.From the perspective of learning motivation and students’expectations for the course,most students expressed their curiosity about cosmic space and interest in the topics of the universe and life,and hoped to gain further understanding about the universe and life,broadened their horizons and increased their knowledge through this course.However,there are also factors that are not beneficialto teaching.A considerable number of students hoped to complete the course in a very easy way and obtain credits.This kind of learning situation puts forward higher requirements for teaching.

1.3 Course content

The Universe and Life has a total of 32 credit hours.The course content is mainly divided into the introduction to the universe,the introduction to life,the conditions for the existence of life,the impact of cosmic radiation on life,the Privileged Planet(including the origin and evolution of life on Earth),the enlightenment of extremophiles on the exploration of extraterrestrial life,exploration of extraterrestrial life within the solar system,the exploration of life outside the solar system and the development prospects of astrobiology,etc..And the ideological and political education content always goes through it.For example,explaining the astronomical achievements of ancient China and related philosophical thoughts[4],and explaining the history of the Han ethnic group in conjunction with the Milky Way galaxy are to guide students to love their own nation and country;Introducing the unique features of the earth is to teach students to cherish the earth and life;Discussing the theory of the Origin of Life on Earth with Students is to promote their divergent thinking,such as"Theory of Chemical Evolution"and"Theory of Panspermia"[5],and the possible life forms in the universe,silicon-based life[6].Discussion on extraterrestrial life based on literature research[5];Explaining the progress of China's space technology and the gap between China and foreign countries in the field of space life science,is to enhance students'sense of pride and mission.In addition to theoretical courses,some practical activities such as astrobiology big data analysis,extremophile experiment and astronomical observation should be carried out on the basis of students'voluntary.

1.4 Teaching means and auxiliary teaching platform

In terms of teaching methods,it combines the leading role of teachers with the main role of students,and focuses on modern multimedia teaching that integrates sound,image,video and text to improve teaching quality and effect.Flipped teaching is carried out at an appropriate ratio to allow students to give 10-minute mini-academic presentations per class.

There are two main teaching platforms,one is QQ course group;The second is Mosoteach.The following focuses on the exploration and practice of online and offline blended teaching based on Mosoteach in this course.

2. Implementation of Blended Teaching Based on Mosoteach

2.1 Preparation before class and construction of the teaching platform of the first class

Firstly,it is necessary to create a new class on the website of Mosoteach,and then create a class under this course.

2.2 Pre class preparation for blended teaching

During pre-class preparation,the Mosoteach platform can be used to do the following tasks:(1)publish videos and text materials for students to self-study;(2)Assign student assignments online;(3)Release test questions;(4)Post brainstorming tasks around a certain topic;(5)Publish online discussions through light live stream;(6)Require students to use Mosoteach for self-learning.

2.3 Implementation of blended classroom teaching

The Mosoteach platform can be organically combined with offline teaching to implement blended teaching[7-9].A few minutes before or after class,check-in should be initiated;After class,teachers should open the live broadcast in a timely manner,and answer valuable questions from students in a timely manner;When talking about a certain part,teachers can directly guide the students to watch the relevant videos uploaded in advance on the Mosoteach platform;In the course of the lecture,on-site voting was initiated to collect students'opinions on a certain issue;The Mosoteach platform can be used to ask questions in class;Teachers and students can look at the opinions expressed by students through brainstorming activities together,and teachers can reply to those representative opinions;Teachers can check the completion of homework,timely urge students to submit homework or conduct mutual evaluation;Teachers should check the situation of the students'last test,and focus on explaining the questions in which most students have made mistakes.In short,the use of Mosoteach platform can run through the entire classroom teaching.

2.4 Course assessment

This course does not require students to master too much new knowledge in the field of astrobiology to avoid increasing their academic burden.The main components of the assessment include the performance on Mosoteach,online assignments,PPT presentations(micro academic reports),final exams and so on.Due to the fact that various parts of the Mosoteach platform can record students'participation,provide them with certain experience values,and set weights for each process to generate a percentile score,most of the indicators'scores come from Mosoteach,which can directly complete the process assessment of the course,reduce the burden on teachers,and also reduce teachers'subjectivity to enable students'grades more objective and fairer.

It is 60%that the proportion of process assessment indicators,while the final assessment(final exam)only accounts for 40%,which avoids the"The merits of students are judged by the test"and reduces the impact of uncertain factors on students'grades,encourages students to study with peace of mind and apply their efforts to learning.Due to the discovery of significant difficulties in writing course

papers for non-science and engineering students,especially art students,in previous teaching processes,the final examination is no longer conducted in the form of a course paper.

3. Evaluation and Reflection on Teaching Effectiveness

At present,this course has been taught three times,with over 200 students who selected this course as their elective course,and the results are great.The research on the learning situation of this course showed that the majority of students have fully affirmed it,with a satisfaction rate of over 95%.The majority of students expressed great interest on it and had been actively participating in teaching activities,and they gained a lot.Some students also expressed that this course have changed their cosmology and world outlook and becomes a lifelong wealth of knowledge.

For this course,there are also some problems in the online and offline teaching process based on the Mosoteach.For example,some students have poor learning enthusiasm;It is generally of low quality that the courseware taught by students independently in flipped classroom;Some students binge-watch videos and other materials to gain experience,and their learning becomes a mere formality;In view of the above problems,it is necessary to further explore and innovate the teaching content and methods,make best use of the advantages and bypass the disadvantages,and give better play to the advantages of blended teaching mode.

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