

Application of WeChat Platform in Advanced Crop Breeding Experiment Course

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Abstract. This paper analyzed the common problems in the teaching process of advanced crop breeding experiment course. In the context of the increasing popularity of WeChat, it is proposed to apply the WeChat platform to the teaching practice of advanced crop breeding experiment course. We studied the educational reform of the advanced crop breeding experiment course, and analyzed the benefits of the WeChat platform, which would provide conditions for the further promotion and application of the WeChat platform teaching method.

Introduction

The advanced crop breeding experiment is the main course of the master's degree in crop genetics and breeding of the Agricultural College of our university. It is the science of studying the basic theories and methods of breeding, and breeding various crops varieties. The course covers the whole process from crop breeding target to seed production. Breeding pathways (e.g., introduction, selection breeding, cross breeding, heterosis utilization, mutation breeding, distant hybridization and ploidy breeding, application of biotechnology in breeding, etc), breeding of main target traits (e.g., pest-resistant breeding, stress-resistant breeding), and crop quality improvement are the key points of this lesson. Advanced crop breeding experiments have a comprehensive and practical discipline. Through the study of this course, students will understand the basic principles of breeding, breeding new varieties of crops, initially master the technical methods and basic operational skills of crop breeding, initially have the knowledge of comprehensive application of the subject and related disciplines, and independently develop the ability of crops breeding.

Nowadays, the traditional teaching mode is a common teaching method used in the experimental teaching of advanced crop breeding in many universities in China. This teaching method usually attaches importance to students' knowledge accumulation and the establishment of knowledge structure and system [1]. However, this teaching method severely depends on the direct teaching of the curriculum teachers, and cannot fully stimulate the enthusiasm and initiative of the students [2]. Therefore, this teaching method will make many knowledge points become very embarrassing and difficult to be understood and mastered by the students. Then students will feel very boring, which will further lead to the students' active learning and self-learning potential cannot be stimulated, the whole classroom will have little vitality and passion. Over time, the passion and interest of students in advanced crop breeding experiments will slowly be lost, and finally students will not be able to get better training and improvement in their innovative and flexible application of knowledge. Therefore, the traditional teaching methods used in the teaching process of the advanced crop breeding experiment course need to be further improved.

In today's era of rapid changes in knowledge and information, traditional teaching models have been unable to meet the needs of teachers and students, which requires teachers to have more innovation in acquiring knowledge and information. This requires teachers to explore new teaching techniques and reform existing teaching methods.

WeChat is a kind of chat tool that we use now. It has the characteristics of synchronous voice, real-time transmission of text, photos and small videos. This tool is powerful and can be installed on computers and mobile phones. People can always use this tool to communicate anywhere. Because WeChat chat tool is very convenient and fast, it is very popular among the masses, especially in college students or graduate students, almost everyone is using it [3, 4, and 5].

WeChat also has many very useful features, which can be used to post voice, text, video and photos in your circle of friends. And you can also create a unique public number on WeChat, so that more people can see related information and news. Based on these characteristics of WeChat, we use the WeChat platform to improve teaching efficiency in the advanced crop breeding experiment course.

Using the WeChat platform to create a new teaching model for advanced crop breeding experiments, students can be encouraged to learn the advanced crop breeding experiment courses, so that students can learn independently.

This study intends to apply the WeChat platform to the teaching practice of the course in the advanced crop breeding experiment of the graduate school of our school, in order to achieve the purpose of improving the teaching effect.

Current Status of Advanced Crop Breeding Experiment Courses

Teaching Effect is Difficult to Be Guaranteed

Nowadays, the teaching tasks of university teachers are relatively heavy, and the teachers of the school are limited. However, in general, each teacher has to face dozens of students in a class. So when the teacher demonstrates the experimental operation, it is difficult to ensure that every student can see or hear it, and the teaching effect cannot be fully guaranteed [6]. For example, in the operation experiment of the rice hybrid breeding program, only a few students in the front row may see how the teacher performs the more meticulous operations such as rice cutting and emasculated. As a result, teachers are unable to understand and master the learning situation of each student in time, and do not know whether they have mastered the key points of the course, and ultimately the teaching effect of the course is difficult to be guaranteed.

The Amount of Information in Teaching is Limited

The teaching of the traditional advanced crop breeding experiment course focuses on three parts, including teaching materials, expounding basic theoretical knowledge, and listing books and literature that must be read outside the classroom. Nowadays, there are many kinds of knowledge and information on the internet, and we can easily acquire, learn and master these information. While, the amount of knowledge in books or literature is limited, which makes the traditional curriculum teaching unable to meet the learning requirements of students, and also does not motivate their enthusiasm and interest in learning. For example, when it comes to anther culture and haplotypes, using the traditional teaching method, the teacher can only explain according to the text in the book. Because it is more abstract, students can't really master the principles and operation points of anther culture and haplotype. But at this time, if there is some relevant video material, the students can quickly learn and master the relevant points at a glance.

Lack of Communication between Teachers and Students

The traditional teaching mode is generally teacher lectures and student listening. But what is the effect of the students listening to the lectures? Do they understand the knowledge points of the teachers? These feedbacks are generally difficult for teachers to collect. Nowadays, the time and opportunities of face-to-face communication between teachers and students is very scarce in addition to the curriculum. What's more, in the traditional teaching mode, the communication between teachers and students is generally limited to the classroom, and the communication method is generally that the teacher asks questions in class and then the students answer. Over time, teachers and students will gradually become unfamiliar. When students and teachers exchange face-to-face,

some students may be nervous and afraid, and will not engage in a heart-to-heart discussion and communication with the teacher.

Course Hours are Severely Reduced

Now, the university curriculum reform that is fully promoted requires the reduction of the hours of professional courses, such as the advanced crop breeding experiment, which has been reduced from the original 56 hours to 38 hours. Due to the serious reduction of course hours, many knowledge points in the advanced crop breeding experiment course cannot be elaborated. In the classroom, teachers can only explain important knowledge points, which put new demands on teachers' teaching ability. Some of the latest information and research results have no time to teach. Due to the inability to understand and master the key content of the advanced crop breeding experiment course, many students could only understand much less contents, and slowly lose the passion for learning.

The Traditional Teaching Mode is Relatively Simple

In most of China's colleges and universities, the courses of advanced crop breeding experiments are taught in the way of "one-speaking", that is, the teachers teach according to the chapter order of the textbooks, and the knowledge points explained generally only be included in the textbooks. This kind of teaching method can only achieve the purpose of "preaching" and "granting", but it can't get the teaching effect of "solution" [7]. This kind of teaching method is not in line with the rapid development of knowledge and information. This single teaching mode will make students lose interest in the course and feel that learning is very boring, which makes it difficult for students to understand and master the important knowledge points of the advanced crop breeding experiment course.

Apply WeChat Platform in the Teaching Process of Advanced Crop Breeding Experiment Course

Using WeChat to build a platform for communication between teachers and students

Using the WeChat platform, teachers can add interactive sessions of WeChat communication in the advanced crop breeding experiment course. At the same time, interactive screens can be displayed in the classroom in real time by the projector. Teachers can interact and communicate with students in the classroom in time. According to the questions raised by the students, the teachers can also find out whether the students really grasp the key points of the course content and keep abreast of whether the students are careful and serious in class. For example, when it comes to genetic engineering breeding, teachers can use the WeChat platform to publish classroom assignments in a timely manner, asking students whether they understand the basic process of plant genetic transformation, and can grasp the mastery of students through WeChat group. The introduction of the WeChat platform has made it a tool for interactive communication between teachers and students after class. Whenever students have questions, they can use WeChat to ask teachers or classmates in time.

Using WeChat Platform Can Expand the Space and Time of Advanced Crop Breeding Experiment Teaching

Because the WeChat platform can be opened 24 hours a day, teachers and students can conduct all-weather, all-round learning and communication. The WeChat learning group or public number they set up together can be a platform for everyone to study and explore the course at anytime and anywhere. Using the WeChat platform, teachers can upload photos, texts, recordings, and short films related to the course content to the WeChat public number or WeChat learning group, and send homework assignments and other learning materials to relevant students. In this way, students can start learning at any time and place by opening WeChat, making full use of their own scattered time, such as waiting at the station, before going to bed, and during breaks. Students can arrange their time and place more easily and freely, and reasonably arrange the progress of the study.

Using WeChat Platform to Update the Teaching Resources of Advanced Crop Breeding Experiments in a Timely Manner

In the WeChat circle of friends, teachers can use the WeChat platform to upload useful learning materials, such as some pictures, text, audio or video resources. All these materials can be published in the WeChat circle of friends, so that students can click, view, forward, message, and so on. At the same time, students can also upload the resources that are related to the teaching content of the advanced crop breeding experiment course to the WeChat platform, and share, interact and communicate with everyone. In addition, teachers can build a WeChat public account for advanced crop breeding experiment courses, through which the various public resources can be disseminated to all students who have followed. For example, teachers can upload small videos of the process of single-sports to the WeChat platform, so that students can learn, and truly understand and master the content of this knowledge point. Introducing the WeChat platform into the teaching of advanced crop breeding experimental courses, students can selectively learn relevant content according to their actual situation and interests. Sharing resources through the WeChat platform can broaden the horizons of students, expand the knowledge of students, and enhance students' ability and enthusiasm for independent learning.

Benefits of Using the WeChat Platform in the Teaching of Advanced Crop Breeding Experiments

WeChat Platform Can Enhance the Interaction and Communication between Teachers and Students

Using WeChat platform can promote the communication and interaction between teachers and students in the advanced crop breeding experiment course, as reflected in: (1) Before the course begins, teachers can create different WeChat groups based on the class. Using these WeChat groups to communicate and discuss a problem in a timely manner, teachers can analyze problems for students in WeChat group, and other students can also publish their own opinions and opinions. (2) Within the scope of the whole school, teachers and students can also create different types of WeChat learning discussion group groups, and conduct timely communication and discussion within the group. Through the help of members of the group, students can solve the difficult problems in the learning process, and eventually grow and progress together. (3) Teachers can use different WeChat groups to arrange homework assignments according to the students' actual learning ability and progress. In these WeChat groups, students can discuss and communicate together.

Using WeChat Platform Can Promote Students' Self-Learning

WeChat has functions such as circle of friends and public number. Teachers can upload the learning materials related to the advanced crop breeding experiment course to the circle of friends or the public number. Students can download, exchange, discuss and learn independently in the circle of friends or the public number. These materials may include photographs, short films and texts of the crop breeding process. And the relevant information may be original to the teacher or student, or may be reproduced on the Internet. Students can use the WeChat platform to conduct independent learning anytime and anywhere, so that they can fully mobilize the students' enthusiasm for learning and thus achieve better teaching results.

Enhance Student Interest through WeChat Platform

Because of the powerful functions of the WeChat platform, teachers can establish the advanced crop breeding experiment public number or WeChat group learning platform, and publish a variety of learning materials on these platforms. At the same time, students can learn according to their own wishes, and select the knowledge and content that are interest in. Students can use the WeChat platform to conduct advanced crop breeding experiment courses, because it contains many very interesting pictures and videos, and shows some very abstract breeding theories and operations in a

vivid way. Students can choose the learning materials of interest to them. So, using the WeChat platform can enhance students' interest in the advanced crop breeding experiment course.

Summary

WeChat has become a real-time chat tool that is widely used by people, and has gradually become a common chat platform for undergraduate and graduate students, which brings new hope to the transformation of traditional teaching methods. Using the WeChat platform to establish a novel advanced crop breeding experiment teaching mode can enhance the communication and interaction between teachers and students, enhance students' interest in independent learning, and ultimately achieve the goal of improving teaching results.

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