The Reform of Practice Teaching in Marine Fishery Science and Technology Major

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Abstract. The practice teaching is an indispensable section of the higher education, and is the basis of developing the comprehensive quality and cultivating innovation spirits of undergraduate. Marine fishery sciences and technology major combine scientific research with technology application, and the technology application are more. Practice teaching plays an important role in cultivating talents especially inter-disciplinary graduates. We establish the practice teaching system of marine fishery science and technology major by means of adjusting the contents and setting new practice links, and construct the progressive practice teaching contents. After applying the results of reform, the interests of undergraduate in studying the professional knowledge and capability of connecting theory with practice are improved.

Introduction

Marine fishery science and technology major, the higher education for marine fishery personnel in China, has a history of over one hundred years. It has experienced the revision of major name and the change of school term and the promotion of major degree and the integration of major and so on [1]. Now, the graduates of this major duly admitted to the degree of bachelor of agriculture after four-year academic period, and have a good capability in sampling the marine organisms and assessing and managing the marine fishery, and can do research on improving the technique of fishing, and can engage in monitor task and protection work for the marine water environment, and should be qualified to administrative fishery. Up to now, ten universities, including Shanghai Ocean University, Ocean University of China, Jimei University, Dalian Ocean University, Guangdong Ocean University, Zhejiang Ocean University, Tianjin Agricultural University, Yantai University, Agricultural University of Hebei Province and Hainan Tropical Ocean University, has set marine fishery science and technology major.

Marine fishery sciences and technology major combine scientific research with technology application, and the technology application are more [2]. The ecological balance and reasonable fishery resources exploitation need to be paid more attention while the fishing technology is developed, so, the graduates should master not only the knowledge of the theory but also the application of technology. On the other hand, the work condition in line with the fishing is very difficult; therefore, the graduates should be trained as a hard-worked, team-oriented, and self-confident man. Above mentioned qualities for graduates were cultivated mostly in practice teaching during the four years of college life [3]. As well, the qualified undergraduate in fishery resources specialty catering to the requirement of the 21st century should also have the quality of macroscopic consciousness and can manage the conflict between human fishing behaviors and protecting marine environments and fishery resources according to the higher education guild lines [4]. Thus, the undergraduates were cultivated in term of the theory researches and the technology
applications about the fishing on the basis of the sound and well-organized practice teaching system to meet the goal of well-knit and a wide range special basic knowledge, highly competent and strong adaptability.

**Ideas of Reform**

Based on analyzing the practice teaching achievements that we have made, it is necessary to further reform the practice teaching with improving comprehensive quality and integrating the teaching content in marine fishery science and technology major. The specific reformation includes:

a. establishing the professional practice teaching system, b. integrating and linking the practice teaching content. After a series of reform measures, the goal of enhancing the major interests, broaden the horizons, improving the adaptability and training the skills for student will be arrived.

**The Methods and Contents of Reform**

Research the links and contents set up of practice teaching, teaching processes and development situations of marine fishery science and technology major in other similar domestic universities, and analyze the shortage of professional practice teaching in content, experience, result and other aspects in our university.

Adapt content of existing practice teaching link, make the composition of teaching content more clear, promote the further consistency of content and the teaching purpose, and lay the foundation for connecting the contents by each other and establishing the organic connection in the practice teaching links.

Add the internship for professional interest cultivation, professional cognition internship, comprehensive training of university students’ innovation, integrated application of professional skills internship and other similar practice teaching, consummate the practice teaching from internships links. Draft teaching strategies of new adding practice teaching above mentioned, discuss the teaching content and realization form; research the systematization of teaching knowledge and progressive relationship, promote unification of practice teaching content.

According to the function and purpose of every practice teaching link, establish the content and link of progressive practice teaching, and build seven professional practice teaching modules which included basic quality, professional cognition, professional basic knowledge, skills training, comprehensive application, innovation ability cultivating and comprehensive quality.

According to the level of basic skills, professional skills and comprehensive technical application ability, arrange the practice teaching content step by step, and implement the goal and task of practice teaching into every practice teaching link and then let students get the necessary, complete, system knowledge and skills in practice teaching.

**The Results of Reform**

The practice teaching is an important part of the higher education for marine fishery [5], is the base way of improving the professional skill and training the initiative spirit of undergraduates, and is the indispensable section for cultivating the well application-oriented graduates with adaptability as well as innovative ability.

The connection between the links was established by means of increasing the practice links and adjusting the practice teaching contents, which make practices a whole, which is the practice teaching system of marine fishery science and technology major. Based on this system, the goal of practice teaching is clear, and the progressive between the links is obvious.
<table>
<thead>
<tr>
<th>Name</th>
<th>Credit</th>
<th>Span</th>
<th>Goal</th>
<th>Module</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Military Training</td>
<td>3</td>
<td>3 weeks</td>
<td>To improve students' ideological and political consciousness, to arouse students' patriotism, to enhance students' organization and discipline, and to keep working style of striving and hard-working. To acquire the characteristics of marine organisms. Have an ability to identify marine organisms. Know the keys well.</td>
<td>Basic Quality</td>
</tr>
<tr>
<td>2 Zoological Practice</td>
<td>0.5</td>
<td>0.5 weeks</td>
<td>Understand the position and work for graduate. Have basic skills and experiences in sampling marine fishery resources and analyzing fishery data. Knowing the function of administration of fishery and fishing harbor supervision, and participating in law enforcement. Cultivating the basic science research spirits and qualities.</td>
<td>Professional Theory</td>
</tr>
<tr>
<td>3 Cognitive Practice</td>
<td>2</td>
<td>2 weeks</td>
<td>Understand the position and work for graduate. Have basic skills and experiences in sampling marine fishery resources and analyzing fishery data. Knowing the function of administration of fishery and fishing harbor supervision, and participating in law enforcement. Cultivating the basic science research spirits and qualities.</td>
<td>Professional Cognition</td>
</tr>
<tr>
<td>4 Marine Fishery Resources Sampling and Analysis</td>
<td>1</td>
<td>1 weeks</td>
<td>Understand the position and work for graduate. Have basic skills and experiences in sampling marine fishery resources and analyzing fishery data. Knowing the function of administration of fishery and fishing harbor supervision, and participating in law enforcement. Cultivating the basic science research spirits and qualities.</td>
<td>Professional Skill</td>
</tr>
<tr>
<td>5 Fisheries Administrative Practice</td>
<td>0.5</td>
<td>0.5 weeks</td>
<td>Understand the position and work for graduate. Have basic skills and experiences in sampling marine fishery resources and analyzing fishery data. Knowing the function of administration of fishery and fishing harbor supervision, and participating in law enforcement. Cultivating the basic science research spirits and qualities.</td>
<td>Professional Skill</td>
</tr>
<tr>
<td>6 Innovation Experiment</td>
<td>2</td>
<td>2 weeks</td>
<td>Training the skill of integrating the theory with practice. To cultivate the ability to analyze and solve the problems independently based on the science research experience. Understanding society and national condition, and improving students’ capabilities of utilizing the knowledge.</td>
<td>Initiative Spirit</td>
</tr>
<tr>
<td>7 Comprehensive Practice</td>
<td>7</td>
<td>7 weeks</td>
<td>Training the skill of integrating the theory with practice. To cultivate the ability to analyze and solve the problems independently based on the science research experience. Understanding society and national condition, and improving students’ capabilities of utilizing the knowledge.</td>
<td>Comprehensive Application</td>
</tr>
<tr>
<td>8 Graduation Field Work and Dissertation</td>
<td>13</td>
<td>16 weeks</td>
<td>Training the skill of integrating the theory with practice. To cultivate the ability to analyze and solve the problems independently based on the science research experience. Understanding society and national condition, and improving students’ capabilities of utilizing the knowledge.</td>
<td>Comprehensive Quality</td>
</tr>
<tr>
<td>9 Social Practice</td>
<td>5</td>
<td>10 weeks</td>
<td>Training the skill of integrating the theory with practice. To cultivate the ability to analyze and solve the problems independently based on the science research experience. Understanding society and national condition, and improving students’ capabilities of utilizing the knowledge.</td>
<td>Social Competency</td>
</tr>
</tbody>
</table>

Innovation experiment and comprehensive practice are set firstly in marine fishery science and technology major, and the progressive relationships from military training to cognitive practice, to zoological practice, to marine fishery resources sampling and analysis or fisheries administrative practice, to comprehensive practice, to innovation experiment, to graduation field work and dissertation, and to social practice is realized, and then the practice teaching system is established.
After applying the results of reform in teaching of marine fishery science and technology, the interests of undergraduate in studying the professional knowledge are roused, and the understanding of work that they will do are improved. And thus, the rates of graduate both obtain employment and pass the examination for postgraduates are enhanced.

Summary

In our world, marine fishery is undergoing the change from randomly exploiting to restricted fishing, and is more dependent on the application of science and technology [6], and then the inter-disciplinary graduates, not only a worker of marine fishing, but also an improver of fishing technology, as well as manager of marine fishery, are need urgently. After increasing the practice links and adjusting the practice teaching contents, and then establishing the practice teaching system, the study results and the capability of connecting theory with practice, and the comprehensive quality are improved obviously. The established practice teaching system serves to cultivate applied and innovation-oriented graduates and develop the marine fishery.

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References


