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Research on Cultivating Critical Thinking Ability in Undergraduate Teaching in Economics Major Students

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Abstract: In the era of digitization and economic transformation, higher education is confronted with new problems and challenges. The new economic situation and technological innovation have put forward new requirements for the teaching of undergraduate courses in economics and management majors. In addition, the popularization of higher education and the need for higher education to address the challenges of artificial intelligence have triggered a reflection on the purpose, significance, and teaching content of higher education. The cultivation of critical thinking ability is an important goal of higher education. This article studies the cultivation of critical thinking ability in economics and management majors. Firstly, the characteristics of economics course were analyzed, along with the new challenges, and the issues of combining them with the cultivation of critical thinking abilities; and then specific strategies were elaborated from the perspectives of curriculum design and training programs, including how to cultivate critical thinking skills in research-oriented, practical courses, and other teaching processes; Afterwards, provides conclusions and propose corresponding countermeasures in teaching.

1. Introduction

In the era of digitization, technological updates are accelerating, and higher education is facing new problems and challenges. The cultivation of critical thinking ability is an important goal of higher education. Unlike professional knowledge, critical thinking emphasizes both ability and thinking. In the stage of rapid development of the digital economy, the new economic situation and technological innovation have put forward new requirements for the teaching of undergraduate courses in economics major. With the popularization of higher education and the need for higher education to address the challenges of artificial intelligence, there has been a reflection on the purpose, significance, and teaching content of higher education. [1] This article attempts to explore and interpret the above issues by studying the cultivation of critical thinking in economic major. [2] Firstly, the characteristics of economics and management courses, the new economic practice environment they face, and the combination of critical thinking ability cultivation were analyzed; Afterwards, specific strategies were elaborated from the perspectives of curriculum design and

training programs, including how to cultivate critical thinking skills in research-oriented, practical courses, and other teaching processes; Afterwards, summarize and propose corresponding countermeasures.

2. Critical Thinking Abilities and Undergraduate Courses in Economics Major

2.1 Characteristics of Economics Courses

Undergraduate courses in economics have specific characteristics with a certain degree of complexity. Economics disciplines provides both theory teaching and practical application, usually combined with industries; it has many interdisciplinary collaborations and is often one of the branches of interdisciplinary research, such as mathematical modeling and economic theoretical models, computer science and high-frequency trading, quantitative investment, etc. The combination of qualitative and quantitative analysis, subjective judgment and objective analysis, combines the attributes and characteristics of social sciences and natural sciences. [3] Therefore, in the teaching of economic and management courses, it is necessary to combine theory with practice, and solve practical industry problems in a unique economic environment; Secondly, interdisciplinary knowledge is required and cannot be limited to one's own disciplinary knowledge; Thirdly, it is necessary to cultivate students' mathematical modeling and computer programming abilities to adapt to the development of theory and practice. Whether it is industry practice, interdisciplinary or modeling and calculation; Furthermore, it is necessary t integrate values, thinking, and cognition into the curriculum system. The teaching characteristics of undergraduate students in the field of economics pose challenges to their ability to think independently, and require them to learn independently and form their own opinions. The unique attributes of undergraduate courses in economics are highly consistent with the requirements for cultivating critical thinking abilities.

Students majoring in economics would also need to make independent judgments on the topics concerning specific macroeconomic, financial investment, corporate management, international economy, and other issues. [4] The judgment of cases has a certain degree of subjectivity and independence. Therefore, the cultivation of independent thinking ability is necessary in medical education. On the basis of building a professional knowledge system, students majoring in economics and management, when working in specific industries, such as securities analysts, need to analyze various factors such as specific macroeconomic conditions, international economic situation, policy changes, legal and regulatory compliance, industry dynamics, market competition, and enterprise management status, in order to make investment value and risk analysis for investment decision-making.

2.2 New challenges and the cultivation of critical thinking abilities

Unlike basic theoretical scientific research, economics disciplines are influenced by external environments, and teaching material needs to be constantly updated. Firstly, changes in the political, economic, financial and legal environments have an impact on both management theory and practice. The rapidly changing international economic situation, constantly proposing new economic theories, and constantly emerging new financial derivatives must all be integrated into the teaching content of undergraduate courses, which puts high demands on the real-time updating of the teaching outline of economics courses. Thirdly, in the era of digitization, digital economy, digital finance and digital currency has a revolutionary impact on the learning content, analysis tools, practical projects and employment choices of economic management students. The rapid development of the digital economy and technology has also put forward higher requirements for

the development of theoretical knowledge in the field of management and the integration with the digital economy. [5] Moreover, talent competition is one of the core elements of international competition. In the context of globalization, a country's technological innovation potential and human resources determines its international status, and also influenced by talent cultivation. Especially the thinking ability cultivated in higher education is an important source of innovation and development for a country.

The new situation, new environment, and new challenges faced by the above-mentioned courses have put forward new requirements. The core objective has shifted from traditional theoretical knowledge transmission to the cultivation of learning abilities. In the new digital era, the training program for economics major has put forward the need to integrate interdisciplinary disciplines. The era of artificial intelligence has put forward requirements for independent thinking and judgment in undergraduate courses in economics and management. In the information age, the development of big data has put forward requirements for undergraduate students majoring in economics to have the ability to obtain effective information, as well as the ability to collect, process, and analyze data. The training objectives of higher education should not be limited to imparting knowledge, but also require the ability to reflect and think, and to reach a higher level, possessing a mental model and value orientation that can be used for analysis, judgment, and innovation. The teaching reform of management majors should not be limited to adding computer courses or increasing industry internships, but requires essential innovation to adapt to the requirements of ability cultivation, thinking training, and innovation.

3. Curriculum Plan, Course Design and Critical Thinking Ability

3.1 Practical courses and critical thinking abilities

Practical courses can significantly enhance the critical thinking ability of undergraduate students. For undergraduates major in economics, the practical courses usually include laboratory courses, industry practice courses, innovation courses and entrepreneurship courses. [6] Economics belong to the category of social sciences. In traditional curriculum, the proportion of practical courses is relatively low, with limited credits and fewer lecture hours. Even if practical courses are provides, they usually become nominal practical courses which actually gives theoretical lectures in the classroom. There is a lack of systematic course plans, low degree of student participation, and ambiguous assessment which could not test practical abilities. In theoretical courses that include practical hours, experimental courses are not given enough attention by teachers and students, the difficulty of experimental settings is insufficient, the process control of the course is not strict, the utilization rate of the laboratory is low, some experimental facilities are insufficient, equipment and systems are aging, making it difficult to meet the latest technical requirements. Innovation and entrepreneurship courses, including entrepreneurship, competition, enterprise cooperation, career planning, and other categories of courses. The participation rate of competitive courses is low, with only a small number of students participating. It does have a role in improving the critical thinking ability of students participating in competitions. However, this model of selecting talents, small class system, and individual guidance from mentors is difficult to promote universally in undergraduate studies. The large class size and the lack of practical experience of lecturer rendered career planning courses inefficient or even meaningless. [7] There are problems with inadequate communication between schools and enterprises in enterprise cooperation courses, and the current management model also makes both enterprises and universities lack motivation. Entrepreneurship courses focus more on economic benefits and the probability of entrepreneurial success, with little emphasis on cultivating thinking skills.

Provide independent practical courses could significantly enhance the critical thinking ability of undergraduate students. Teaching staff is one of the key issues for the success of practical courses.

Although the proportion of dual qualified teachers is one of the evaluation indicators for universities, it is difficult for them to teach practical courses for all students. Firstly, the meaning of practical course is more than the experience in enterprise and industry, but also reflects differences between higher education and apprenticeship based vocational education. Secondly, the industry and corporate experience of dual qualified teachers exist before teaching, and the timeliness of their industry-specific knowledge is subject to certain tests. Again, the concepts of employment and teaching are completely different, and industry experts may not be competent in cultivating students' practical abilities. The practical teaching staff of universities need cooperation between schools and enterprises, inter school exchanges program, and internal training and external recruitment. The curriculum and teaching outline, teaching content, and teaching methods also need to be designed in advance and verified to a certain extent. The assessment method that matches the teaching outline is a guarantee for the quality of practical courses and the improvement of student abilities. Laboratory computer exams, course paper or group discussions are not enough. It lacks detailed evaluation criteria and cannot objectively reflect the contribution of each student. The grades also lack discrimination, which in turn affects learning motivation. Comprehensive, segmented, objective, and comprehensive practical evaluation standards are also one of the guarantees for the success of practical courses.

3.2 Research based courses and critical thinking abilities

Unlike graduate studies, undergraduate courses generally lack the research element. Given the development of society and technological advancements, undergraduate teaching is different from vocational and technical training, and it is more necessary to cultivate students' self-learning abilities. Systematic training in scientific research methods can not only enhance students' learning abilities, but also greatly stimulate the cultivation of their critical thinking abilities. Some universities offer research-oriented courses in the field of economics, which are generally elective courses and are more likely to be offered in "Double First Class" universities. They also serve as a prerequisite course for supervisors to screen graduate students in advance. Some universities believe that offering writing courses can enhance undergraduate students' critical thinking abilities. The School of Economics at Tsinghua University offers advanced writing courses, which involve reflection, thinking, and enhancing thinking abilities during the writing process.

The research-oriented courses offered separately have a significant effect on enhancing critical thinking abilities. The research-oriented curriculum during the undergraduate stage should meet the requirements of the undergraduate training program and should also be set as compulsory course hours as much as possible to ensure the participation of all students and the quality of university training. At the same time, research-oriented courses for undergraduate students should also be consistent with their level. The teaching content, teaching plan, and teaching methods of research-oriented courses also require the participation of universities and research institutions in top-level design, with relevant professional experts and teachers of similar courses from universities conducting multiple discussions to ensure the research attributes and effectiveness of the courses.

According to the general learning laws and the development process of college students, from the perspective of professional knowledge formation, students will go through a series of processes in higher education, from knowing nothing to seemingly knowing, and then to recognizing limitations and shortcomings. At the same time, it is also a transition from a freshman with no professional foundation, to a sophomore with a lot of added professional knowledge but seemingly confused, to a junior with a professional knowledge system, and ultimately to the stage of reflection on the knowledge system, questioning and self-reflection, and even innovation in the graduation thesis. However, the current curriculum and assessment requirements in universities, as well as the requirements for degree awarding, mainly rely on the course assessment scores. For economics and management majors, their main component is the written test scores of the final course exams. The form of test paper can ensure the mastery of professional theoretical knowledge, but it is difficult to

reflect or stimulate the cultivation of critical thinking ability. How to transition from knowledge to ability, from thinking to thinking and thinking, is a problem that undergraduate research-oriented courses need to solve. [8] Adding research-oriented courses during undergraduate studies should include research methods, research ideas, and project-based research. In the content of research-based courses, scientific research methods provide students with basic research tools, and project-based learning enhances their ability to independently learn and solve problems.

3.3 Other teaching activities and critical thinking abilities

Reasonably utilizing short semester teaching activities has a significant promoting effect on cultivating students' practical and research abilities. Project based self-directed learning, research, and problem-solving can effectively enhance students' critical thinking abilities. Short semesters are usually arranged after the end of the spring semester and before the start of summer vacation. Each university has different arrangements, and can be arranged from freshman to junior year. Most schools have arrangements in their sophomore year. At the end of the academic year, students have acquired a certain knowledge system. Continuous, concentrated, and undisturbed learning time also provides a good environment for research and thinking. Unlike short semesters in engineering majors such as surveying and mapping, metalworking experiments, etc., short semesters in economics courses are more likely to become empty talk, lacking substantive content, and wasting valuable time for teachers and students. Hangzhou Normal University offers courses in various aspects such as data analysis, research methodology, and simulation practice for students majoring in finance in the short semester. These courses are jointly undertaken by all teachers in this major, teachers in data mining and computer technology in other fields, and industry mentors invited from well-known enterprises. Each of them leverages their professional strengths to jointly develop a short semester plan, carry out teaching activities, and conduct detailed assessments.

Practical training and other practical activities are requirements that each undergraduate major must complete under the current regulations and rules. For students majoring in economics and management, on the one hand, there are more opportunities for practice and training, and various enterprises are suitable for internships for students majoring in economics and management; On the other hand, internship and practical training lack professional targeting, and the timing conflicts with the postgraduate entrance examination, job search, and other aspects, making it difficult to achieve results. Improving school participation, increasing the professionalism of professional internships, and strengthening process control are necessary to achieve the effect of cultivating thinking abilities.

The graduation thesis section is a test and summary of the student's undergraduate learning achievements. From an academic perspective, a graduation thesis is the best tool, means, method, and process for cultivating critical thinking, as well as the most comprehensive and challenging teaching process. Strengthen the guidance and management of graduation thesis, from selecting research topics that are more exploratory and up-to-date, to the requirements for innovation and characteristics in the writing process, thinking about technical routes, and strict supervision and timely guidance from mentors throughout the entire process of graduation thesis writing. The undergraduate thesis evaluation system, and even the trial implementation of an anonymous evaluation system, can also push the mechanism and enhance the enthusiasm of students.

The research training program for college students is widely implemented by various universities, including Double First Class universities and ordinary undergraduate institutions. The process of topic selection, research, mentor guidance, defense, report writing, and paper publication is similar to that of graduate education. This study expands the target number of university students' research training program and strengthens interdisciplinary research among faculties. This study establishes a cross-campus research exchange mechanism to provide information, resources, and communication and teacher platforms for cultivating critical thinking.

4. Conclusion and Suggestions for Policy Strategy

In the era of digitalization, with the acceleration of technological updates and the rapid development of the digital economy, higher education is facing new problems and challenges. The new economic situation and technological innovation have put forward new requirements for the teaching of undergraduate courses in economics and management majors. In addition, the popularization of higher education and the need for higher education to address the challenges of artificial intelligence have triggered a reflection on the purpose, significance, and teaching content of higher education. The cultivation of critical thinking ability is an important goal of higher education. This article studies the cultivation of critical thinking ability in economics and management majors. Firstly, the characteristics of economics and management courses were analyzed, along with the new challenges they face, and the issues of combining them with the cultivation of critical thinking abilities were studied; Afterwards, specific strategies were elaborated from the perspectives of curriculum design and training programs, respectively explaining how to cultivate critical thinking skills in research-oriented, practical courses, and other teaching processes.

In terms of policy recommendations, new independent practical and research-oriented undergraduate courses should be established to stimulate innovation, and critical thinking should be integrated into teaching processes such as short semesters, internships, and graduation theses. Interdisciplinary studies, especially those related to digital economy and artificial intelligence, are of great significance in enhancing the self-learning ability of undergraduate students majoring in economics and management, promoting independent thinking, and cultivating innovative thinking and concepts. Through research and investigation, it has been found that increasing inter school communication and interaction, regional universities moderately sharing resources of Double First Class construction universities, and ensuring resources and faculty can effectively promote and guide the cultivation of critical thinking.

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