Reflections on the Case Teaching of Postgraduate Course Based on Cultivating Innovative Ability

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Abstract. Incorporating the essence and feature of case teaching, this research focuses on the education goal of postgraduates’ innovation ability and argues that postgraduates’ case teaching is good for fostering their problem awareness, improving their logical thinking ability and fostering healthy academic atmosphere. Given the problems of case teaching for postgraduates in our university, such as the lack of case teaching culture, teachers’ limited grasp of education methods, students’ insufficient participation and the slow development of case libraries, this research proposes detailed measures including attaching great importance to case teaching in postgraduate courses, organizing the study of the inherent laws and teaching techniques of case teaching, promoting the construction of typical case libraries in various disciplines, constructing the soft scientific environment, and cultivating postgraduates’ academic quality.

Introduction

Nowadays, with the continuous promotion of the strategy of Mass Entrepreneurship and Public Innovation in China, cultivating innovation ability has become an orientation in the national innovation system. Postgraduates have been identified as a major group for innovation. Cultivation their innovative ability therefore becomes a key factor affecting national technical improvement and economic development. In recent years, the Ministry of Education and other departments have issued a series of documents highlighting the importance of cultivating postgraduates’ innovative ability. Incorporating its own characteristics, our university has systematically conducted substantial theoretical exploration and practices for cultivating postgraduates’ innovative ability. Course teaching has been adopted as the primary way to training graduate, building their theoretical knowledge foundation, and guiding them to conduct scientific research and academic innovation. Here we propose that the case teaching mode is a key approach to foster the innovative consciousness and innovative ability for postgraduates.
The Essence and Characteristics of Case Teaching

Case teaching is a specific teaching method that with the guidance of teachers and requirements of teaching purposes to organize students to investigate, read, consider, analyze, discuss and communicate cases. It therefore teaches students’ the method of analyzing and resolving problems, and deepens their understanding of basic principles and concepts [3]. Case teaching is different from the traditional example teaching. It has a clear teaching purpose, strong practicality, multi-dimensional communication channels, and heuristic teaching characteristics.

Clear Teaching Purpose

Case teaching method uses cases as an approach, arranging teaching tasks and concrete teaching content around teaching goals. Therefore, the selection and redaction of case materials reflects a clear teaching purpose. With carefully selected cases as the discussion material, it guides postgraduates to explore academic innovation points during the process of case reading. Through orderly organizing postgraduates to conduct material analysis and discussion, the core of the case teaching content and teaching objectives can be delivered to them step by step.

A Strong Practicality

A strong practicality of case teaching is reflected in two perspectives—the rich connotation of case material and the complexity of knowledge application system. Case material is often an objective expression of the development process of a specific event or a complete description of the process and conclusions of a scientific research. It covers rich information from various levels and perspectives. Postgraduates should not only comprehensively apply the basic theoretical knowledge that they mastered, but also size up the situation, weigh the strain, and make decisive decisions through their own analysis and thinking. They can therefore explore academic innovation points, enhance their innovation ability, and finally realize the transformation from theories to practice.

Multi-dimensional Communication Channels

In traditional teaching, teachers mainly use one-way communication method of example teaching to deliver knowledge to students. Students are always receiving knowledge with high intensity and independence. There are few opportunities for them to think actively, or to discuss with other students. It therefore hard to cultivate innovative consciousness and team work spirit. Case teaching can effectively establish teacher-to-students and student-to-student communication modes. This kind of multi-dimensional communication way is more conducive to arouse the enthusiasm of students and stimulate students’ enthusiasm for learning. It helps them to express their views under the guidance of teachers, learn to think and cooperate, find useful information, establish problem-solving methods, and develop the habit of inquiry.

The Profundity of Heuristic Teaching Methods

Case teaching is different from the traditional example teaching, it is a heuristic teaching method with cases as a carrier, and it is a teaching process in which teachers and students work together to discuss a specific case. In the course of case teaching, teachers often inspire students to think, explore and discover independently by proposing discussion topics, guiding students to think independently, organizing group discussions, and summing up speeches.
This heuristic teaching method is convenient to form an atmosphere for further discussion. It provides an effective way for students to think deeply, analyze the nature of things and explore the laws of science, and it finally enables students to deeply understand the law of the development of things and summarize the methods and techniques of resolving problems.

**The Important Role of Case Teaching in Postgraduate Courses**

Postgraduate education is a systematic project, which normally includes curriculum teaching, practice and research. Among them, curriculum teaching is an important foundation of postgraduate education. The systematic study of basic and elective courses of a major helps postgraduates to broaden their academic view and master important technologies. It also works on consolidating the theoretical basis for the development of practice, and supporting academic innovation in research work. The role of case teaching in postgraduate courses for cultivating innovative ability can be concluded as follows:

**Cultivating Postgraduates’ Problem Awareness Ability**

Innovation begins with the discovery of problems. Good at discovering problems leads to the possibility of academic innovation. In recent years, the state has adjusted the postgraduate education policy timely. The number of postgraduates in schools has therefore increased obviously. However, number increase does not mean the academic level and scientific research ability have improved [4]. Due to the influence of the traditionally “irrigation” teaching mode, students develop the habit of passive acceptance without a critical spirit. Therefore, postgraduates in the study period often can not find problems nor ask questions quickly or effectively, and then limit themselves to further consider effective ways to solve questions. Thus, effectively cultivating the critical thinking of postgraduates is necessary to enhance the innovative ability of postgraduates, and it is also the overall requirements of academic development and social progress. In the course of case teaching, a teacher can adopt the Five-Stage mode covering problem design—trigger thinking—gaps identification—orderly discussion—problem exploration procedure to teach. The mode can potentially guide postgraduates to conduct research and deeply explore case material. In addition, if a brainstorming method is adopted, it potentially initiates postgraduates' enthusiasm to discuss academic questions, reduces students reliance on teachers, promotes active thinking and questioning and orderly trains postgraduates’ critical thinking ability.

**Improving Postgraduates’ Logical Thinking**

Cultivating postgraduates' creative ability covers Four-Procedure—Ask questions—Programme Development—Research Methods Selection—Measure Optimization. Each procedure in this process is closely linked to the logical main line of discussed topics. Case teaching focuses on the process of inductive research, emphasizing that students are the main body of the classroom. It stimulates students’ free and active exploration for unknown fields based on their existing knowledge. By arranging postgraduates to read certain number of relevant academic paper and cases, teachers can guide student to summarize research scope, hot spots, research methods and mechanisms, and to formulate and optimize research approaches. Through the communication and discussions between teachers and students, students gradually clarify the content of the discussed topic and the logical relationship of sub-topics. Through training inductively logical thinking, it improves the logical thinking
ability of postgraduates, reduces the phenomenon that the research goal deviating from the track, and enhances the innovation ability.

Creating a Positive and Healthy Academic Atmosphere

The academic atmosphere in colleges and universities influences the development of disciplines and the universities themselves, and is also an important cornerstone of the orderly development of various industries. In colleges and universities, academic misconduct occurs from time to time. The root cause is the lack of innovation ability of postgraduates. As a special academic group in colleges and universities, postgraduates should not only be limited to the acquisition of knowledge, but also should pay more attention to the creation of knowledge. However, in just three years of postgraduate study, if teaching methods and thinking habits are not scientific, postgraduates are difficult to quickly complete the overall process of discovering problems, asking questions, finding effective solutions and proposing innovative ideas. Through the effective implementation of Five-Stage and Four-Procedure in postgraduate course teaching process, we can create the contention of diversified thoughts in a classroom, enhancing students’ academic self-confidence and cultivating students’ habit of critical thinking and expressing opinions. In this way, students will be prompted to explore problems and create innovation, avoiding the plagiarism of others’ academic views or other academic misconduct, and thus creating a positive and healthy academic atmosphere.

Major Problems of Case Teaching

The role of curriculum case teaching in cultivating postgraduates’ innovative ability has attracted more and more attention from managers and teachers of colleges and universities. Teachers of our university have also begun to use case teaching methods to organize the teaching activities of postgraduate courses. In the practice of case teaching for postgraduate courses, certain goals have been achieved, but there are still some problems that cannot be ignored.

The Lack of the Culture for Case teaching

At present, the university has begun to attach importance to postgraduate case teaching modes. A series of work has been conducted including postgraduate case teaching reform, postgraduate case course construction and case course reform projects in various disciplines. Although postgraduate case teaching is carried out in all disciplines, the lack of unified planning has resulted in a low proportion of case courses in some disciplines. It is obvious that case teaching method for postgraduate course has not been widely accepted by most teachers from various disciplines.

Some teachers began to be aware of the advantages of case teaching. However, due to the long-term use of traditional teaching methods of inertial thinking influence and the lack of case teaching facilities and funds, it is difficult for teachers to quickly adjust the curriculum teaching program to meet the needs of case teaching. “Example teaching” is easily mixed with “case teaching”. In addition, after experiencing the “irrigation” teaching mode in the undergraduate stage and the long-term passive accepting knowledge, it is not easy for postgraduates to quickly shifting from “passive acceptance” to “active discovery”. Therefore, it is difficult to form a multi-dimensional and in-depth teacher-to-students or students-to-students discussions in classes.
Teachers’ Inaccurate Grasp of Inherent Laws of Case Teaching

At present, unlike in the discipline of economics, management and law, the case teaching method has not been widely used in the postgraduate course teaching in the engineering discipline. Teachers often use abundant case material to organize classroom teaching, but due to the lack of research on the inherent laws of case teaching, it is difficult for them to consider the overall design of curriculum case teaching, training objectives and subject characteristics based on the teaching laws of Development Law and Two Primary Laws [5]. Therefore, there is a lack of systematic study and arrangement of following points covering the teaching content and learning hour arrangement of postgraduate case teaching, the establishment of case database, quality control and assessment methods. It thus results in the formalism of case teaching practice and the difficulty of achieving the “Teacher-led, Student-oriented” case teaching methods, and also greatly reduces the effectiveness of improving the ability of postgraduates to solve practical problems.

Insufficient Interactions with Students in Case teaching

In the case teaching class, it is easy to appear the phenomenon that students do not understand, listen, nor participate. Confronted with a series of problems raised by teachers due to the lack of adequate preparation and the accumulation of practical experience, it is difficult for some students to absorb the essence of the problem or to find effective information instantly. So, it is not easy for them to actively participate in-depth discussions with an enthusiasm. Moreover, they prefer avoiding the awkward situation of eye contacting with teachers, becoming a “bow family member”. In a classroom, if the number of students involved in the discussion is limited, the depth of discussion is insufficient, it can not form an efficiently multidimensional interactions between a teacher and students or among students. Therefore, only teacher speaking is common in classes.

The Preparation of Case Libraries for Teaching Lags Behind

The important foundation of the case teaching is constructing a case library. At present, there lacks case libraries supporting case teaching in postgraduate courses, especially in engineering disciplines. On the one hand, the supporting funds and policy support from the university for promoting constructing case libraries are insufficient. In addition, due to the differences in disciplines and courses, there has not yet formed the quality standards for case libraries construction of various disciplines. On the other hand, professional teachers have not yet grasp subject characteristics and curriculum training objectives of the system to continuously organize the curriculum case teaching program. They often focus on the curriculum content to collect and collate case materials, so it is not possible to build a comprehensive system of typical case libraries shortly. Meanwhile, professional teachers ignore the guiding role of case libraries in the postgraduates’ extracurricular study. Therefore, their willingness to build a case base is insufficient and the construction and improvement of case libraries lag behind.

Countermeasures and Suggestions

Regarding the problems existing in the case teaching of postgraduate courses in our university, the following countermeasures and suggestions are proposed to optimize case teaching and improving postgraduates’ innovation ability.
Attaching Great Importance to Case Teaching in Postgraduate Courses

In order to improve the innovation ability of postgraduates, we must attach great importance to postgraduate case teaching. It is necessary to value postgraduate case teaching and conduct a series of seminars for postgraduate case teaching in the university or school levels. Detailed measures including actively completing the top-level design of postgraduate case teaching, reasonably setting the proportion of case teaching in various disciplines, formulating the case teaching implementation plan in line with the subject characteristics and training objectives scientifically, establishing the quality assessment standard of the case teaching of postgraduate courses, strengthening the teaching reform to promote the case study, and implementing the supporting facilities and funds for the postgraduate case teaching. Through the above series of multi-level multidimensional research, it potentially leads to embedding case teaching deeply in the heart of management and professional teachers and improving the teaching effectiveness.

Organizing the Study of the Inherent Laws and Teaching Techniques of Case Teaching

Firstly, it necessary to organize professional teachers to fully understand the influence of Development Law and Two Primary Laws on improving postgraduates’ innovation ability, clarify the implementation process and characteristics of Four-Procedure and Five-Stage in case teaching, and implement the case teaching for postgraduate courses efficiently. Secondly, we should take the Development Law as the guiding ideology, analyzing the case teaching practice conditions and measures for applying knowledge reserve to enhance ability. Also, it should take the Two Primary Laws as the core to formulate the case teaching implementation plan of “Teacher-led and Student-orientation”. We also need to host seminars on teaching methods and techniques of case teaching, incorporating characteristics of subjects and curriculum and brainstorming. Finally, we need to establish the teaching method system of Four-Procedure and Five-Stage in case teaching, providing effective implementation measures for teachers to proficiently deliver case teaching.

Promoting the Construction of Typical Case Libraries in Various Disciplines

Constructing case libraries is an effective guarantee to improve the effect of case teaching. It is the basic work of cultivating postgraduates’ innovative ability. It necessary to systematically study subject and curriculum characteristics, explore the possibility of establishing typical case libraries of each postgraduate courses, and establish the evaluation standards of the case library construction to ensure its quality. It also needs to combine with the objectives and contents of postgraduate courses, considering the systematization, series, integration and characteristics of knowledge, collecting all typical case materials, ensuring the relevance and diversity of the knowledge and content of the case. Finally, teachers need to strictly control the quality of case material collection, screening and preparation processes based on the Case Formulating Process, and update the typical cases of the case library regularly based on frontier trends of the discipline.

Constructing the Soft Scientific Environment and Cultivating Postgraduates’ Academic Quality

Creating an academic soft environment that advocates “learning-oriented”, advocating innovation, independent scientific spirit and free academic atmosphere, and cultivating students’ academic spirit are important ways to enhance the innovative ability of
postgraduates [6]. On the basis of regularly organizing postgraduates to participate in academic reports, a forum for “academic dialogue” is launched to conduct equal dialogue and free communications between professors, industrial experts and postgraduates from various disciplines, so as to train postgraduates to dare to talk to academic experts and the spirit of critical thinking. It necessary to take scientific research as the center to conduct regular communications between teachers and postgraduates in various subject groups, and guide postgraduates to refine and excavate valuable theoretical problems from scientific research practice. We should promote the selection of Academic Youngsters, strengthen advertising the academic experience of promoting the winners, establish Academic Models, and promote the healthy development of the academic environment for postgraduates.

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