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Research Article

Construction of Collaborative Teaching Strategy Model of "Urban Planning Methodology" Course*

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Abstract

The “urban planning methodology” course for postgraduates focuses on analyzing and solving problems from the system level of research methods. Taking constructivism as the basis of epistemology, “collaborative” teaching absorbs the teaching ideas of participative teaching and research teaching, it’s a new teaching mode to improve and promote postgraduate teaching. Through the construction of the "cooperative" teaching strategy model, the strategy implementation of four links: research topics, research organization, research framework, and collective writing is adopted to establish the subjective teaching concept, improve teaching participation and make the teaching more targeted, so as to further enhance the appeal and effectiveness of teaching.

Keywords

Urban Planning Methodology • Collaborative • Teaching Strategy

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In recent years, with the rapid development of China's urbanization progress, the scale of urban and rural construction expands continuously. Legal construction issues, ecological and environmental issues, housing issues, and heritage protection issues have become increasingly prominent. In this context, urban and rural construction needs to transform from extensive scale expansion to fine quality improvement, and the traditional urban planning disciplines also face new opportunities and challenges for development. The official implementation of the *Urban and Rural Planning Law of the People's Republic of China* in 2008 means that the traditional urban planning methods and ideas are constantly updated. In 2011, urban-rural planning was separated from architecture and became an independent first-level discipline, marking that the construction of this discipline has entered a new historical era. Urban planning methodology is the core content for the professional theory teaching of urban and rural planning. Under the background of the transformation of urban and rural construction and discipline development, urban planning methodology research also shows a changing trend. The fourth edition of the textbook *Urban Planning Principles* published in August 2010 has greatly expanded the content of planning education field in urban planning values, knowledge system that combines spatial and technical aspects, and the concepts, methods and rich contents of the new era (Cui and Zhao, 2012). But so far, the curriculum teaching of urban planning methodology still stays in the one-way mode of "teaching-accepting", and the students' exploratory study on the connotation and extension of the discipline is insufficient.

Teaching content of urban planning methodology

The urban and rural planning discipline has the characteristics of systematic, diachronic, practical and dynamic (Ding and Song, 2013). When students and researchers explore and apply comprehensive research methods to understand the general planning problems, they may neglect the connection and role between the discipline itself and the research methods used in the process of world discovery. Roy and Healey have proposed existing work and research methods in the field of urban sociology, but lacked the pertinence of research in the field of planning space. Planning scholar Bent Flyvbjerg also proposed a social research method in the field of planning in 2001 and 2002, but also lacked the role and significance of specific spatial practice.

The research methodology in the field of urban and rural planning is based on its systemic nature, which is different from the general research of the "discovery" of the world. It includes meticulous data collection, clear guidance, and analytical conceptual framework, as well as the preciseness and skills to conduct comprehensive research activities. At the same time, it is also necessary to emphasize the interactive process of research and the relevant characteristics of the practical application process. Research methodologies that focus on spatial and regional planning disciplines tend to be more general and are applied in different disciplines. Most of the current literatures are described in terms of specialized research designs or research methods, and are only applicable to specific subject areas. The research methodology closest to urban and rural planning disciplines mainly draws on the relevant content of human geography. The two have some common basic features, but there are still major differences in the operation and application of specific methods.

Through comprehensive analysis of domestic and foreign literatures on urban and rural planning methodology, the research topics are focused on: the orientation of action; clear normative focus; recognition of systematic knowledge generation; place features and spatial relationships; diversity of laws and paradigms; political system environment cognition of knowledge generation and application; the ethical dimension cognition of knowledge generation and application. These studies, combined with the practicality of planning disciplines, still require an analysis of the political-system context.

The urban and rural planning majors of many colleges and universities in China have already set up relevant courses in methodology research at the postgraduate level. However, most of them are based on universal scientific research methodology, and the social research methodology is the main teaching content. There are also some colleges and universities that use the research methods of human geography, public administration and other disciplines as the starting point for the organizing of teaching. So far, the postgraduate teaching of urban and rural planning still has the problems such as the diversification of theoretical methods and practical application methods, and the heterogeneity of coexisting knowledge, etc. And the traditional teaching mode can hardly make students master the specific connotation and characteristics of methodology in multiple and complex systems.

Collaborative teaching mode

The collaborative teaching model absorbs the teaching concepts of participative teaching and research teaching, and forms a new teaching concept based on constructivism. Constructivist learning theory is a new generation of learning theory based on the study of children's cognitive development. It is a further development of cognitive learning theory. It advocates that learning is the construction of the interpretation of objects through information processing activities. Individuals construct knowledge based on their own experience (Zou, 2002). On this basis, when individuals realize that social conditions are an important prerequisite for the development of human, they will spontaneously participate in social cognitive collaboration to enhance capacity building. In this process, coordinating with others, reaching consensus, and taking action to benefit from other people's perspectives will be highly relevant to the development of personal knowledge and abilities, and will enhance the personal value with social and coexistent characteristics based on knowledge acquisition. Social cognitive collaboration can and must evolve into a capability itself (Roselli, 1999). In the teaching process, teachers must effectively organize the teaching content in a cooperative environment, and use specific strategies to plan and arrange “collaborative” teaching activities (Roselli, 2016).

Collaborative teaching breaks through the teaching process which over-emphasized on “teaching-accepting” in the past, and transforms students from the passive accepting learning to active learning, reflecting the development direction and trend of postgraduate education teaching methods reform. In the collaborative teaching mode, the organization of the teaching process is the most important part, and the complete collaborative teaching mode is implemented through gradual steps to achieve the teaching goal. The collaborative teaching mode is not organized by the technical means of teaching. The key is the change of teaching attitude, which is also the change of the relationship between teaching and learning. On this basis, the teaching organization is transformed into the planning and implementation of the collaborative strategy

(Barkley *et al.*, 2007; Exley and Dennick, 2007), and this kind of collaborative social teaching is more effective and valuable than independent individual learning. Therefore, in the urban planning methodology course for postgraduates, the collaborative teaching strategy model is constructed to make the teaching more suitable for the subjective learning needs of graduate students.

Collaborative teaching strategy model

The postgraduate course "urban planning methodology" is a compulsory course for graduate students majored in urban planning. It is also one of the professional optional courses for graduate students majored in architecture or landscape architecture, and it aims to train students to establish their own theories and methods of urban and rural planning, and grasp the complex contradiction of the city as a whole, so that students can understand the basic elements of urban and rural settlements and the basic theoretical knowledge of specific methods applied in urban and rural planning. The teaching purpose of the course is to enable students to master the basic content of scientific research methodology and to understand the connotation of the urban planning methodology.

As a general human cognitive and learning process, social cognitive collaboration can be expressed in any social situation under appropriate organization. The collaborative teaching model in this course is based on the methodological basis of social cognitive collaboration. Through student group implementation, the steps of negotiation, organization, consultation, literature study and collective writing are takes to study and discuss scientific research methods with universal significance starting from the ethics, value and jurisprudence of urban and rural planning, so that it can expand students' understanding of urban and rural planning values and cultivate thinking methods for urban and rural planning research. The teaching organization realizes the collaborative teaching through the face-to-face interaction mode by constructing the teaching strategy model.

Research topic selection strategy

The selection of teaching research topics is based on the rational communication method. It is organized through the teaching links of talking, listening and evaluating. Each student can express his/her own judgments, understandings and opinions on the topic in all links, and the topic of the group is determined by evaluation.

Chain brainstorming. The goal of this teaching link is to stimulate students' expression and make them spontaneously communicate and participate. Four students voluntarily form a group, and the teacher proposes research topics on urban and rural planning methodology for each group to discuss. Each student gives a thought about the research topic, puts forward the key points of the research, and displays them in order. Each students talks about the key points of the topic, and others correct or improve their understanding of the key issues according to the depth of the discussion. After listening and talking, and refining, comparing and categorizing the key points for a couple of times, students can get to know the subject in depth.

Mutual evaluation. The goal of this teaching link is to stimulate students' evaluation ability through mutual evaluation. In the group of four students, they are subdivided into groups of two, and the mutual evaluation of

the background research of the topic is conducted. Each student, according to his/her own judgment, mutually corrects and evaluates another student's written research report about the background of the topic. The revised results are submitted to the group for collective discussion.

Collective evaluation. The goal of this teaching link is to establish collective evaluation criteria and reach a consensus on the research topics. Groups of four students collectively conduct comparison and discussion of the written opinions of their mutual evaluation, and each student debates or answeres the opinions received. In the group discussion, teachers join the groups as collective evaluation members, they express expert standards for the research topics, correct deviations in the collective evaluation criteria, and resolve academic questions that may arise in the group discussion. In the end, after group collective comparison and discussion, consensuses are reached to determine the research topics that each group will complete.

Research organizing strategy

After the study groups determine the research topics, they complete the topic research content and activity organization by literature study and empirical research. In the groups, decompose the complex tasks and assign the works, each student determines his/her working position and role in systematic research activities.

Literature research. Literature research is one of the important contents in the postgraduate training. Conducting literature research with each group as a collective is conductive to develop students' self-organizing skills, expand their visions of literature research, deeply explore and identify the support of literatures to the research of the topics, and analyze the deficiencies or shortcomings of existing research, so as to further determine the entry point of the empirical research.

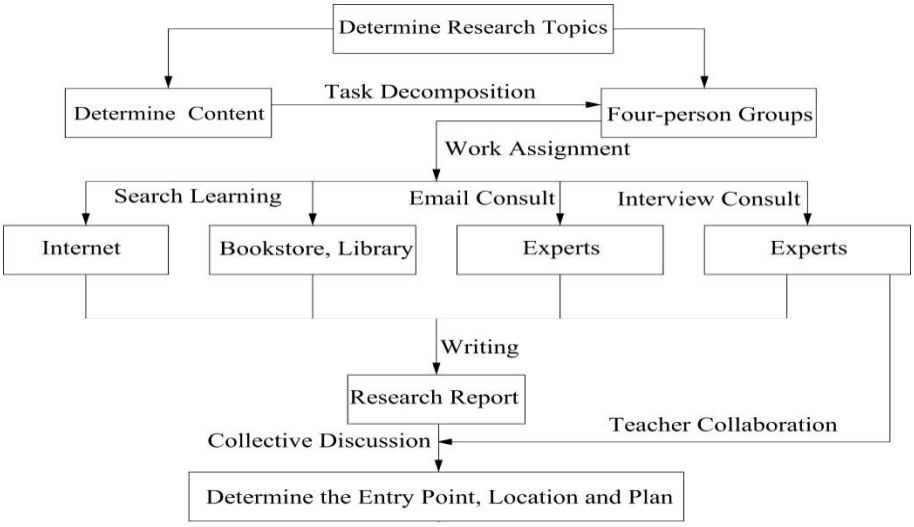

Figure 1. Determination of the entry point of the research

In the groups of 4 students, according to the determined research topics, the tasks are decomposed according to the main research contents of the topics, and the work assignment is performed, including: ① Search for and learn literatures through the internet; ② Search for literatures through bookstores and library resources; ③ Interviews with experts of the research field; ④ Consult experts in the field of research by e-mail. Each student completes one of the above tasks and writes the corresponding literature research analysis process and conclusions, submits a written report, and conducts group collective discussion. Through discussion, the entry point of empirical research, the location of empirical research, and the field research plan are determined. In this link, the teacher works as an interview expert to perform teaching with the collaborative learning groups (Figure 1).

Empirical research. This part is a more complex systematic work. The groups consist of 4 students complete the in-depth analysis of the research topic through field research, data statistics and analysis, and processing and integrating the information.

In the groups of 4 students, decompose the tasks according to the determined field research plan and the research content, and conduct work assignment, including: ① Field investigation, obtain the first-hand data; ② Obtain possible second-hand data through literature and data collection, and expert interviews; ③ Process, analyze, and integrate the data; ④ Complete the research report. Each group member must participate in at least two of the above tasks, the research report of each group is reported in the classroom and discussed in the form of expert defense. In this link, the teacher works as an interview expert and a defense expert to collaborate with the study groups for teaching (Figure 2).

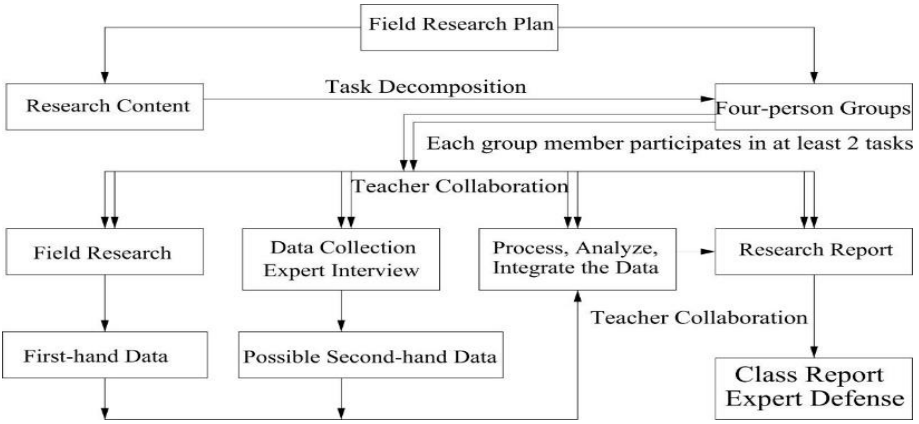

Figure 2. Work assignment of empirical research

Research framework strategy

Through the examination and comparison of the scientific problems raised by the research, and by exploring the methods, key technologies and paths to solve the problems, this paper analyzes the three main elements of

the research subject, the research object and the research tool (method), and summarizes the research framework of the topics.

Content refinement. Through reviewing of literature research, the conclusions of the empirical research are examined and compared so as to improve understanding of the research of the topics, further focus on the research content and avoid research bias. In the four-student groups, conduct examination and comparison in pairs and refine the research content, then propose methods and paths for refining the research content, then report in the classroom for teachers to give comments.

Alternate evaluation. Each group conducts an alternate evaluation of the refined research content to develop students' ability to evaluate problems and focus on core issues. The alternate evaluation process is completed by conducting “questioning-answering-correcting”. Each group completes an evaluation description of the research content, and the teacher conducts the final evaluation, submits written comments and suggestion for perfection, and feeds back to the groups.

Factor analysis. Each group member analyzes the research system with the elements of research methodology, and determines the research subject, research object, research method and research tool. Each group concentrates on four types of elements for conceptual integration and generates a methodology-oriented research framework.

Refinement of the research framework. The proposed research framework is refined, and each group completes the main outline, logical block diagram, research path and expected research conclusion table of the research framework. The group interacts in the classroom, compares them, and supplements and perfects them by comparing the results.

Collective writing strategy

The “urban planning methodology” course requires the groups to give study evaluation by writing a research report, and the collective writing is an important link for displaying the results through the preliminary group discussion, evaluation, and other process. This link cultivates the students of the text comparative analysis and comprehensive essay writing abilities. Each group of 4 students acts as a collective, and completes the tasks by task assigning, separate writing, collective integrating and team leader overall planning. The reports are conducted in the classroom and evaluated by experts.

Implementation of the teaching strategy model

In the specific teaching process, through the implementation of collaborative teaching strategies, the teaching links are reconstructed and the teaching organizations are innovated. The reform of teaching activities reflects the postgraduate teaching mode that emphasizes scientific concepts and scientific thinking. Attentions should be paid to the cross-cutting issues in the values system, ecology and society, and behavioral sciences of urban and rural planning. We also need to guide students to deal with the relationship between individual

learning and collective collaboration, and use the degree and depth of student collaborative research as a visual indicator to measure the classroom.

From the aspect of teaching organization, expand the faculty. To cope with the transformation direction of urban planning and the characteristics of curriculum reform, organize teachers and experts to form a collaborative teaching and evaluating collective, give full play to the advantages of collective teaching, introduce rural planning theories and methods, public participation theories and methods, geographic information technologies, etc., and experts or teachers would give comments, so as to strengthen the cultivation of students in multi-disciplinary integration and cross-research thinking mode.

From the aspect of teaching process, innovative the teaching links. To pay attention to the students' ability in problem analyzing and solving, the teaching process should be transformed from the "teaching-learning-examining" to the "learning + teaching – teaching + learning - practicing". In the teaching strategies of each link, students learn independently and raise questions under the guidance of teachers, and then teachers organize group discussion and class defense. Finally, under the guidance of teachers, the groups collectively form teaching results combining theories with practices. The transformation in teaching procedures highlights the students' subjective and collaborative characteristics.

In the implementation of the "urban planning methodology" course teaching, the existing teaching resources are integrated, the professional structure of the faculty is optimized, and a teaching expert team composed of 6 teachers is formed. Each team member is responsible for the research topic of a 4-person student group, and 6 research topics are adopted to carry out the collaborative teaching strategies, the topics include: rural planning theories and methods, urban planning public participation theories and methods, ecological urban planning theories and methods, urban (township) planning values analysis and thinking, comparison of urban land classification standards under different institutional-social backgrounds, historical and cultural street blocks planning for environmental behavior analysis. The teaching results of students are submitted in a form of collective texts, including the following contents: theoretical evolution and review, main research method system description, research case (or empirical) analysis, self-assessment.

Conclusion

The collaborative teaching strategy model is a learner-centered classroom teaching mode that breaks through the teaching inertia of one-way indoctrination. It is an innovation of teaching organization and a transformation of teaching philosophy and teaching methods.

The core of the collaborative teaching strategy is to cultivate students' collaborative thinking mode. In the teaching organization, the M:M method is adopted, which is a many-to-many teaching method. In this way, many teacher experts and many students are in the same teaching process. According to the direction of information transmission, there are both one-way and two-way teaching interactions as well as multi-directional teaching content. Through multi-directional teaching interaction, we can complement the professional knowledge and skills in teaching, establish a good communication atmosphere, so as to carry out clear division of labor, and achieve effective organization and management.

Under the background of social transformation, postgraduate education needs to reflect the spirit of open, equal, sharing and collaborative teaching and learning. The collaborative teaching mode enables the teaching subjects to be highly interactive and forms an active learning environment with high interaction, information sharing, and diversified teaching methods. At the same time, the construction and implementation of the collaborative teaching mode is also facing a series of challenges from aspects of teaching organization and teaching art. Students can participate in the design to construct a variety of teaching organization strategy models suitable for students' characteristics. A variety of three-dimensional practical teaching platforms, such as simulation practice and field practice, can be combined and absorbed to enhance the effectiveness of teaching.

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