Practice Model Based on Social Science Research Sociological Construction*

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Abstract - Sociology of science content and the development process demonstrate the characteristics of the times the sociology of science. Through the study of college students' social practice model, combined with the characteristics of the sociology of science, social practice of the discipline construction model for the further development of the sociology of science are given.

Index Terms - Sociology of science, social practice, discipline construction, mode

1. Introduction

From the discipline construction of the universities referring to civil engineering disciplines such as architecture, images of construction and architectural design are immediately surfaced in mind, but there is not much perception on the sociology of science when referred to. For the definition of sociology of science, there is no uniform standard. In English, sociology of science is the sociology of science rather than the scientific sociology. That is to say, when sociology of science is spoken of, its state and the level of development are not stressed, so don't the sociological distinction between science and non-science. The focus is that there is a special department in the field of science and research subjects in the big field of sociology. Sociology is its research fields viewed from philosophy. The object of the study is scientific activities and theories, which aimed at the basic question of the logical structure, knowledge acquisition and inspection, exploring the nature of science.

Sociology of science has broad and narrow sense. The sociology of science in a broader sense is discussed under the general aspects of the relationship between science and society, including the scientific and political, economic, education, religion, literature, art and other social factors, such as the role of content; special theory of sociology of science, or sociology of science in the strict sense, is the results of scientific research with the use of sociological concepts and methods by professional sociologists. In this field, as a representative Merton and his school principally regard science as a social institution to study. The structure of social relations and research scientists within the Community, the scientists conduct scientific reward system and other issues are the main topics. The main structure of social relations and research scientists within the Community, the scientists conduct scientific reward system and other issues. Sociology of science will be discussed in a subsequent broad –based.

2. Development of Science and Sociology

2.1*The birth of the sociology of science*

The establishment of Merton's sociology of science theory marks that sociology of science became an independent discipline. The book "seventeenth-century England, science, technology and society" written by Merton in 1930s marked the birth of the sociology of science. In the groundbreaking work, sociology of science was not regarded as a research object but only focused on exploring the interactive relationship between science and society. After the publication of the "normative structure of science", Merton began deliberately to study sociology as a science and focused on the internal structure of science, especially the code of conduct structure and no longer discussed the social environment science. Merton constructed to functionalism theory and structure building based on logical positivist epistemology.

Merton's theory revealing the core of science is not only an objective and reasonable system of knowledge. It is also an institutionalized social activity which scientists should be bound by universalism, communalism and other specifications. Although Merton has published guiding articles on scientific norms, the sociology of science is not taught as a distinct theme to exist [1].

Morton's contribution to the sociology of science can be evaluated by the words, "To ask what contribution Merton has made in this area (refer to the sociology of science) is almost asking the wrong question. If the sociology of science is compared to an ocean, then Merton is like a navy commander fleet commander who explores and inspects the piece of ocean and draw up the charts .We originally had historians and philosophers of science, but until Merton we have the sociologist of science"[2].

The establishment of Merton's sociology of science lays the foundation for understanding the science of the social system, providing a theoretical paradigm. However, there are some theoretical limitations. Merton neglects Relations between scientific knowledge and social factors. Sociology of science is the one without scientific knowledge but with the scientists' behavior and organization.

2.2 *The revolution of the sociology of science*

In 1962 Kuhn published the book "The Structure" which led to a profound revolution in philosophy and sociology of

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science on the scientific concept. Famous American sociologist of science Bernard • Barber had pointed out that, "Structure" led to a revolution in the relationship between the creative philosophy, history and sociology of science. At that time Kuhn himself did not fully realize the fact but implicit in his mind works. He used the concept and material from all three professions and put science to be studied as a social phenomenon which is unprecedented [3].

Kuhn has contributed to the following aspects in sociology of science:

First, the "The Structure" marks the change direction from philosophy of science to sociology. Traditional philosophy of science focuses on these issues: understanding the nature of science and scientific, progress and conditions in the development model. However, Kuhn's theory reveals the science is not a purely rational process in view of the personal interest of scientists, quality and scientific consensus throughout the process. So, the knowledge contains many social and cultural traditions, individual psychological traits and other factors which is no longer a purely rational vehicle. Knowledge must be placed in a broader study varied social backgrounds.

Second, the scope of the study of the sociology of science has more scientific knowledge content which is ruled it out before. Kuhn closely linked recognize and social factors. Since then, the sociology of science from non- cognitive science sociology gradually turned to cognitive science.

Third, the "The Structure" has changed the image of science. In view of Kuhn, scientific activities are often expressed as an irrational leap. It is subject to the scientific community on the selection of paradigm and not a rational choice paradigm dominated by the scientific content before. Since the determinant factor is not the paradigm of rational choice, they should be found in the social sphere. Thus, scientific knowledge is actually a product of social construction, the same as any other knowledge.

2.3 *Deconstruction and reconstruction of sociology of science*

Edinburgh School scholars focus on the nature of the problem of scientific knowledge. They believe the sociology of science not represented by Merton doesn't analyze scientific knowledge itself of sociological. Scientific knowledge forms a "black box" technology which is a major flaw. To this end, on the basis of deconstruction of Merton's Sociology of Science, Edinburgh School constructs a program of Sociology of Scientific Knowledge about the content of scientific knowledge sociological explanation. The Brewer elucidates the methodological principles of sociology of scientific knowledge and establishes four basic principles of a strong program: causality, impartiality, symmetry and reflexivity. In order to put the outline into practice, the Edinburgh school interprets it to be "benefit model", which is sociological causal explanation on the relationship between the production and application of scientific knowledge and its objectives and actors.

The proposition of Edinburgh School's strong program marks the social studies of science steering system from the sociology of science to sociology of scientific knowledge, A major turning point occurs in theory and practice. Under the influence and driving of the Edinburgh School, the sociology of knowledge within itself forms scientific, research laboratories debate and research multi-sites. Constructivism boards the sociological research stage of scientific methodology mainstream. Through theoretical and empirical research, Constructivism implements the basic tenets of the sociology of knowledge into a description of science, showing secular images of scientific knowledge.

Seen from the development of Sociology of science, it can be found that theory development is inseparable from the reality of sociology of science. Scientific applications are increasingly concerned and social factors in science are increasingly showed with the development of science. The development of science and sociology theory conforms to the needs of its own development. However, a strong program of SSK to sociology of science established by the Edinburgh school is not a perfect end. It ignores the power of science and practice in the object, or even denies the objectivity, rationality and reliability, hindering a comprehensive understanding of scientific practice of the activities. After the publication of "the practice of science and culture", empirical research and social research began to highlight the social constructivist objective dimension of the role of science and show the role and significance of the facts, apparatus, equipment, experiments in scientific research organization system.

3. Sociology of Science Disciplines

Sociology of science are soft science, and soft science has some characteristics: First, the complexity of the research objects, including the technological, economic , social and other open complex giant system; Second, the synthesis of the research approaches, requiring both the use of natural scientific methods and social scientific methods, demanding both quantitative analysis and qualitative thinking. Third, the practicality of research results, should serve for China's modernization and decision-making of the government in all levels. Since the inception of soft science in China, its strong consciousness of problems pushed to form the aim of "serve practice, serve decisions". It is tightly around the complex, systematic and holistic content in the form of multi-disciplinary and cross –disciplinary with new levels of achievement for government services, providing strategic and policy options, offering guidance to its organization and management, paying close attention to the important and urgent practical problems of the country in a long-term, which take on the task that other disciplines can't bear.

In the Late 20th, science and technology was a double-edged sword. Though it had brought the application of science and technology, it also caused divisive humanity and disregarded for ethical values. In such circumstances, the US-led western countries pursued the implementation of HPS education to promote science education and communication to

the public by way of learning the history of science, philosophy of science and sociology of science. While in focusing on the dissemination of scientific empirical knowledge, it ignored the overall culture of public scientific literacy.

Since then, science education started over from the elite to the public ceremony, which also spawned the appearance of the book "Buddha experimental science case studies ". Students understood the basic methods of experimental science and the process of social development activities. HPS integrated science education by way of promoting students ' awareness of their nature, but the results didn't go well.

Then systematic refinement of educational research focused on specific teaching content and teaching scenarios studied through action research and research methods.

1930s, the growing popularity of museum school mode caused various educational institutions attention. For students and teachers education manual was introduced and more favorable conditions were created. However, according to statistics, out-school science-spread organized by schools was usually to complete the task and did not help the public to "learn". Museum Education developed to become a quick walkthrough of the catwalk. Discipline construction faced dilemma. How should be the development of the sociology of science going on?

4. The General Pattern of Social Practice

For college students, social practice becomes a major feature of the subject development. Can the social practices currently be applied to the development of science and sociology as well?

4.1 *Domestic practice mode*

There are so many domestic universities. Two representative institutions of the country are selected to study practice patterns.

Shandong University expands the categories of professional quality stratification according to the contents of the students' experience of family roles, social role experience and the social practice. Family Roles Experience is mainly carried out in the first grade students, requiring students to make use of winter and summer engaging in more than fifteen days housework, guiding students to undertake family responsibilities and enhance sense of gratitude in a year; Social Roles Experience is undertaken in sophomore. It requires students to take advantage of summer vacation or spare time , relying on a social unit or a job to engage in at least ten days of work to promote students to adapt to society and improve student abilities in all aspects; Professional Quality Development is carried out primarily in two or three grades , requiring students to combine professional direction to carry out social surveys and other activities over ten days after school in order to consolidate students' professional knowledge, foster students' literacy and social service occupations and enhance the employability and competitiveness. [4]

Northwest Agriculture and Forestry University carries out social practice mainly in the following modes: ① village linked to the hospital: Colleges and universities establish a stable contact with the countryside. On one hand students have more opportunities to practice, on the other hand it brings some technical and other assistance to rural; ② summer countryside activities: Activities such as "science technology, culture, public health "and "College Summer return socioeconomic research " are mainly carried out. Among all the activities, summer social practice in college students serves the largest group and has the biggest impact; ③volunteer activities : In recent years, nearly 70 % of the graduates of the school are willing to do volunteer jobs in Midwest supporting the construction of the western development. There are about more than 300 volunteers participated in the organization and management , logistics services , travel talks, guided tours and foreign language translation in Yang Ling Agricultural Hi-Tech Fair each year[6]. ④ writing practice papers: After hands-practice, students conducted to write according to their own in-depth investigation. ⑤work-study: The school provides annual work-study jobs to thousands of college students, mitigating the economic pressure and exercising practical abilities.

4.2 *Foreign social practice mode*

Foreign social practice can be summarized as the following modes:

First, the teaching mode concerned about the growing ability of students to practice: This kind of mode has two main features: ① focus on students' active participation. Such as Japan and the United States use the speech class, discuss lessons, tutoring, test classes, case studies and moot court to enable students to participate actively. In that way everyone can fully experience the fun of participation and apply the knowledge into skills. ② organize teaching in center of cases, problems and projects. Schools according to their characteristics, the use of sexual and practical teaching, give full play to the initiative of students to solve real business problems. Schools adopt issues and practical teaching according to their characteristics, inspiring the initiative of students and solving real business problems.

Second, the trainee - Practice mode: University colleges of business in U.S set off a boom in improving social reform. Some schools require freshmen internship before school. Some require freshmen practice in volunteer companies to bring up the spirit of students' cooperation and establish the ability to face real problems but not on paper.

Third, industry-academia cooperation model: universities and enterprises corporate in finance and project. Universities offer researchers to develop research, produce timely scientific and technological achievements into productive forces. The results of university are transferred to the market and the business community to exchange information with the business community, and to provide entrepreneurial and employment opportunities for students.

Fourth, the cooperative education mode: Taking advantage of two different educational environments and

educational resources, the combination of universities and research institutes, schools and businesses learns from each other to train a high level of practical training and social adaptation of persons.

5. Practice Exploration of the Sociology of Science

For a long time, in the framework of historical materialism, some theorists sided emphasis on material production and the role of the fundamental driving force of social need for professional development. The deviation on understanding led to the occurrence of the phenomenon underrating and going against professional autonomy in development of science in practice.[5] It has great mean to fully mobilize the enthusiasm of the public to the development of the sociology of science. Combining the characteristics of the history of the sociology of science and its own soft disciplines, the following practice patterns are conceived:

(1) Out of the classroom and into the books

Sociology of science as a special discipline, it is just too narrow to explain the contents in classroom. To grasp the nature of its depth, it requires a lot of reading. Teachers can take a variety of forms in classes, such as seminar and tutoring, promoting students' initiative and increasing their amount of reading. Teaching places don't have the mandatory requirements. Make full use of library resources. Let students go out of the classroom and enter the library to promote the training of scientific literacy.

(2) Out of school and into the community

In the history of the sociology of science, Merton had ignored to study the relationship between scientific knowledge and social factors while Kuhn had linked understanding and social factors closely to demonstrate that knowledge must be placed under the broader social context. It's visible that scientific knowledge is actually the product of social construction. So the development of Sociology of science need to focus on social by ways of building on the countryside three, linked to the cooperation between enterprises and universities, colleges and interring companies to help students go out of the school and pay attention to social factors influencing all walks, laying a solid foundation for further study of the sociology of science.

(3) Out of the theory and into practice

Sociology of science alone can't create real values. It requires the combination of the application of technology. The study of sociology of science before Edinburgh School ignored the power of science and practice in the object. The facts in scientific research, instrumentation, equipment and laboratory organization have shown their mean to exist. Establish specialized laboratories to research scientific sociological theories. Combine the expertise and research methods from other disciplines to achieve a qualitative leap from theory to practice of the application of sociology of science.

References

[1] Aolika · Shigesiter, "Beyond the science wars - lost science and society's Word," *University Press of China*, 2006, pp.74.

[2] R. Biersted, "Sociological Theory: A Critical History," New York: Academic Press, .1981, pp. 445.

[3] Bernard Barber, "Learning and social order," M. New joint publishing, 1991, pp.9 -10.

[4] Li Kai., "Study of practice model in college students in China - Taking Shandong University as an example," A. Shandong University, 2012.

[5] Lv Guochen, Wei Li., "Analog - engine power port technology development," J. Henan Normal University, 2007.

[6] Jia Yibo, "Social Forestry Research Institutions Practice Mode - Taking Northwest A & F University for example," A. Northwest Agriculture and Forestry University, 2008.

[7] Liu Yexing, "Analysis of Sino-US differences in college students' social practice model comparison and inspiration," A. Northwest Agriculture and Forestry University, 2012.

[8] Wu Yan., "Community college students' practical work problems and countermeasures," A. Chongqing University, 2012.

[9] Guo Sheng, "Social practice that exist in current problems and countermeasures," A. Jiangsu University, 2012.