

# Preliminary Research into the Supervisor System of Cambridge University

Zhenqing Feng

**Abstract:** The supervisor system is a feature of education in Cambridge University, especially the supervisor system for undergraduate. The supervisor systems for undergraduate and graduate of Cambridge University were introduced in this paper. The problems of supervisor system and the reform direction of education of undergraduate and graduate in higher education of China were also put forward in this paper.

**Keywords:** supervisor system; reform direction of education; higher education in China

University of Cambridge is one of the top university in the world. It has been making many outstanding contributions to the physics, chemistry, biology and medicine, literature, history, education, and especially in science and technology fields. There are 80 Nobel Prize laureates from Cambridge University since 1904, included DNA double helix structure - the greatest discovery in the twentieth century. University of Cambridge holds top-notch scientists in the world, who has very solid, effective scheme of supervisor system.

It is a vital measure of supervisor system for the education of undergraduate and graduate in the university. Top supervisors are needed to the high quality students, which is basis of high quality of education. This paper will show a preliminary research of the supervisor system in Cambridge University. I hope it will be a very good references for the education of undergraduate and graduate in China.

## I. Supervisor system in Cambridge University

### 1. The supervisor system for undergraduate:

There are three aspects in supervisor system for undergraduate in Cambridge University.

**Director of Studies (DoS):** There is a DoS for each registered student. DoS is a formal fellow who has responsibility for the academic life of all the students in the College. The function of DoS includes to urge students' studying, to forward the suggestion of teaching, to constitute teaching diary, to appoint the supervisor for students, to arrange the supervision of college education, to monitor the progress of supervision, and to collect the feedback of student supervision. DoS plays a crucial role as the primary connection between the College and the individual faculty, the department.

**Supervisor:** There is a supervisor for each course. The supervisor, mostly PhD student in the

college, is appointed by DoS. The general aims of supervisor are to explain and analyze the materials that were given in the lecture, to instruct student to finish schoolwork, to help student prepare thesis, to instruct student to explore research, and to help student prepare Tripos examination. These instructive courses are called supervision, which is the core of the educational provision in Cambridge Colleges. The examination of Cambridge University is basically an open style system. Under the given topic and instruction from supervisor, students prepare and write their articles. After examination, the student's article can be referred in library and online. Supervisor should select the topics and reference books, instruct students how to read and use the reading materials. Supervisor should also help students to improve studying techniques. The studying techniques include how to use the resources of library, how to evaluate the important works, how to use these references to argue, how to make a speech and challenge many expert theories. In order to instruct student better, supervisor should normally attend the lectures that the student has and discuss problems that were raised in the lecture with student.

Usually one supervisor instructs two or three students in a fixed timetable, one hour a week. Most colleges expect their students to receive four supervisions in one course of 24 lectures, and three supervisions in a 16-lectures course, plus (probably) a revision supervision before the course examination. There are also two supervisions for a 12-lectures course and one supervision for a 8-lectures course. In the end of each fiscal year, every student is required to complete an inquiry form that is to evaluate the quality of supervision and get feedback from students. Online Supervision reporting system for undergraduates is used by Cambridge University.

Tutor: Every student has a tutor, who is a formal fellow in the college. The role of tutor is to provide all round supports and guidance of non-academic activities including health care, accommodation, application of financial support (e.g. studentship). Tutor

also makes the connection with other sections inside and outside of university. The students can get helps from tutor for almost everything in the college.

## 2. The supervisor system for graduate

The supervisor system for graduate student in Cambridge University is similar to the system of university in China, but with some special items.

Supervisor: The graduate will be assigned a supervisor in the department or faculty. The supervisor will guide the program of study or research. The graduate will meet regularly with his or her supervisor to discuss progress of research. Or generally graduate will submit some written works to the supervisor at regular intervals. Supervisor makes the formal report on your progress and will discuss it with you. The supervisor has own laboratory and funding, and encourages graduate to do the innovative research. Some supervisors are doing the cutting-edge research and are potential for the future Nobel Prizes.

In regard to Ph.D. supervisor, there is no such a qualification system in Cambridge University. Depending on the funding and the position in the department, lecturer, senior lecturer, reader and professor can be engaged as supervisor for the Ph.D. student. But the supervisor is not for life-long. As long as funding for research is granted, supervisor can recruit Ph.D. students. Owing to not every expert can get funding, some professors might not qualify to have Ph.D. student. Generally, each supervisor instructs 3 to 5 Ph.D. students.

Advisor (or called Second Supervisor): The advisor of Ph.D. student may be selected from the same or different department. They help supervisor to instruct Ph.D. student. The second supervisor will discuss the progress of research projects regularly and can have informal communication with student by an appointment at any time. Sometimes graduate is involved in some subjects that supervisor is not familiar with, the second supervisor at this point will play the essential role. The second supervisor is also doing the mediation of student-supervisor relationship,

especially in a tension of communication between supervisor and student.

Mentor: Many Mphil, MSc or PhD students also have a mentor in department in the first year. The mentor will pay attention to student's study or research progress, discuss the general issues of training, communication, and involve in your assessment etc.

Tutor: Tutor is selected from college in assistance of non-study/research needs for the graduates. The role of tutor is to help graduates with any problems except the responsibility of academic supervisor, such as personal, welfare and finance problems etc.

## II. The problems of supervisor system in the university of China

Since there is no supervisor system for undergraduate in the university of China, let us focus on the problems of supervisor system of graduate student.

1. The lifelong tenure system of graduate supervisor: Even though a few universities abolished a lifelong tenure system of graduate supervisor by introducing competitive mechanism, the lifelong tenure problem of supervisor for graduates has been existed in the most of universities in China. Once the graduate supervisor passed the qualification, the qualified supervisor will likely be a lifelong tenure. These supervisors can recruit research graduates until the time of their retirement, regardless of the space of laboratory and the funding of research. There are no competitive consciousness and no competitive pressure for these graduate supervisors. This kind of situation seriously affects the diathesis of supervisors and the quality of graduates, especially for the Ph.D. students.

2. There are too many recruitments in some universities in China. Some Ph.D. supervisors instruct over twenty graduates, and some even have as many as forty or fifty graduates. In this kind of situation, how does the supervisor have energy and time to in-

struct their graduates, it also limited their research outlays. Professor Chengtong Qiu, who is the "Fields" Medal laureate and a great Chinese mathematician, criticizes current Chinese graduate system that is only focus on the quantity and not on the quality of graduate students. "In the field of science, some professors want to earn a good reputation through supervising more and more Ph.D. students, even up to 30 under one supervisor. But there is no good diathesis for such graduates. In western countries, like Cambridge University in UK, one professor only supervise 2 - 5 graduates. Many of these graduates with very good diathesis will become great professors after they graduate from this kind of prestige's school. "

3. The knowledge and academic level of supervisor. There are some graduate supervisors with outdated knowledge and incapable to instruct graduates in China. Science in every field is a great honor and as a scientist or a scholar is also a great honor, they should always chase the development of science. A supervisor with some previous achievements in science, who don't want to purchase academic activities any more, should not be defined as a qualified scholar or scientist. If one person is not a scholar or a scientist, he must not hold any academic title, e.g. researcher or professor, and also must not supervise any graduate students.

4. Some graduate supervisors have no creativities, no funding and no bench in the laboratory, which it has been called "Three-no supervisors". After the recruitment of research students, these kind of supervisors will ask graduates to find the research topic and money by themselves. These supervisors have no the responsibility of supervision.

5. There is turgescence and quantum phenomenon existed in science. Although some supervisors published more than ten papers in one year, they might only focus on quantity and not quality.

6. Some supervisors have been in charge of multiple tasks and too busy in administrative works to instruct graduates, they couldn't focus on the research

works of graduates students.

### **III. Supervisor system of Cambridge University enlightening the higher education in China**

#### **1. Undergraduate education**

To enhance the quality of undergraduate education is an urgent problem to be solved in higher education of China. The supervisor system of Cambridge University gives us a valuable guidance that we should know how to increase the quality of undergraduate education. The supervisor system can be used in undergraduate education in Chinese universities and the supervisors can be granted to M.Sc. or Ph.D. students, who supervise the study and the research works of undergraduate. On the one hand, the teaching of undergraduates can be emphasized by the supervisors, on the other hand, graduates have an very good opportunity to excises their talent and accumulate the teaching experience. That is the real culture for the graduates in the university towards the future master in the different fields. At the same time size of universities is enlarged, the good quality of undergraduate education will be developed effectively.

#### **2. Post-graduate education:**

The supervisor system of graduate in Cambridge University gives us an enlightenment for our graduate education of university in China. Some suggestions are for the reform of Chinese graduate education.

##### **1) To introduce advisor system**

Modern society is in the time of "knowledge blast", which update of the knowledge is quickening up. One supervisor is an expert in one research fields, perhaps he might not familiar with other relevant subjects. At present, the research topics of many graduates are involved in many disciplines and supervisor has the ability not equal to his ambition to instruct the graduates. Under this situation, if an advisor is selected from relevant subjects and supervise the graduates in some aspects pertiniciously, this

problem can be solved effectively.

##### **2) To abolish the qualification system for graduate supervisor**

If you want to be a supervisor and try to instruct the graduates, you have to pass the procedure for the qualification of supervisor. Once this step passed and got approval from committee in university, you will be granted the supervisorship for M.Sc. or Ph.D. candidate. Then a supervisor can recruit and instruct graduates. In the later of last century the supervisorship for Ph.D. candidate was examined and approved by Academic Degree Office of State Council (A-DOSC) and the supervisors of Ph.D. candidate became a special estate above general professors. No doubt, the qualification system of supervisor played an important role in ensuring the quality of graduates. There are also some shortcomings in this system. After the supervisor been named, especially the supervisor for Ph.D. students, the supervisorship is almost lifelong.

After the qualification system for supervisor is abolished, the recruitment of graduates will depend on the approval funding. There are some advantages as follows: first this is an equitable process; second the supervisor, especially supervisor of Ph.D. candidate, is not a honor and a special title anymore but only responsibility; third it can avoid the problems that some supervisors with no funding, no research topics can recruit graduates, but some young professors have no chance to have graduates even they have enough funding. And the last limited targets of recruitment can be settled effectively.

##### **3) To control the recruitment of graduates strictly and abrogate the lifelong system of supervisor**

The admittance system for recruiting graduates should be constituted strictly. The graduates can be recruited only under specific research direction, enough research outlay and well-equipped laboratory. Some supervisors, who have not enough research outlay and no specific research direction, practice falsification, and plagiarize other's achievements, should be quashed. The lifelong system of supervisor

should be abolished definitely.

The experience of recruitment in Cambridge University can be used for a good reference and the number of graduate recruitments can be decided by the approved funding. Other items such as the origin and scalar of funding should also be concerned. If a supervisor gets a grant from Natural Science Funding of China, he can enroll 2 or 3 graduates; if a grant from provincial funding, then one graduate and the scalar of funding should be concerned. If the grant is already completed and still have money left, it should not be used as the basis to recruit graduate. After the topic is already finished, the money left means the supervisor using money not accurate. So the phenomenon that the supervisors dispute the targets of recruitment can be avoided. For it is impossible for a supervisor to get grants every year, it is not a normal phenomenon for a supervisor to recruit graduates every year. It is suggested that the supervisor in the university of China recruits no more than 2 graduates each year.

4) To omit the provision that papers have to be published in journals before academic degrees are conferred to graduates.

In order to ensure the quality of graduates, the universities in China constitute the provision that pa-

pers have to be published in journals before academic degrees are conferred to graduates. It is active to encourage graduates to publish high quality papers. This provision is not suitable to the rule of science and the culture of scholar. Cambridge University don't have such a provision. As long as the graduates pass the value of dissertation and the academic degree is suggested to be conferred by defending committee, the academic degree should be discussed and conferred by the academic degree committee of university.

The supervisor system is a feature of education in Cambridge University, especially the supervisor system for undergraduate, which is the basis of keeping high quality education and culturing high-tech scholars in Cambridge University. This paper only involved in common characteristics of supervisor system. According to the traits of discipline, each college or faculty has some special items in operating supervisor system, which is different from those of other colleges or faculties. The detailed materials can not be mentioned in the paper. The supervisor system of Cambridge University can be referenced selectively and pertinenciously by the universities in China. The supervisor system of higher education in China will be reformed and perfected further.