

## **Discussion on the main problems existing in the idea of running a university in China**

**-----Based on the analysis of California Institute of Technology**

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**KEYWORDS:** idea of running a university, California Institute of Technology, China's university problems.

**ABSTRACT:** the idea of running a university refers to where a university goes in essence, which is the soul of the development of university. The article will sketch out the idea of California Institute of Technology which is a success in its small but excellent higher education by case analysis. The core element will be penetrated into on the process of becoming the first-rank around the world, and then reflects problems existing in China's ideas. For example, pursuit larger scale, pay more attention to get into politics and becomes superficial.

### **THE IDEA OF CALIFORNIA INSTITUTE OF TECHNOLOGY**

California Institute of Technology was founded in 1891, located in Pasadena, California. It is younger than Harvard and Yale, which has a history for about a hundred year. However, it has been well-known for a long time and become world tops among science and technology institute of science technology. According to the rank of universities around the world reported by Times Higher Education in 2012-2013, the college ranked first and kept top for 3 years.

#### **Characteristic—small but excellent**

California Institute of Technology is a model of elite college. It keeps on to the idea of being small but excellent. At present, there are only about 1000 undergraduates and 900 graduates. Only 6 divisions are founded. So far, there are only 2, 2000 students who graduates in this 50.18hec college. In the early 30 years, there were no more than 100 students in the university which wasn't broken until mid 1920s. Over 2000 students are enrolled in after 1980 which has been kept to nowadays. Although appeals on enlarge the scale continuously exists even on the agenda for several times, board of directors of the college is always decreed. In order to keep on to developing in a small scale or ensure the quality after enlarge the scale, they brought up a scheme that the level should be high enough comparing to school of chemistry and physics which are the bests in the college and impossible to be equal to if the scale had to be enlarged. As a result, there are still only 6 divisions like biology and mathematics. The mode of administration of the college is also very simple. There are only 2 stages: college and divisions instead of 3 stages: college, schools and divisions in general universities. Every headmaster of California Institute of Technology has to make sure to the board of directors that he will keep on to a small scale and make it excellent. Up to 2011, 31 and 32 persons are awarded Nobel and 40 are conferred to National Medal of Science in such a small scale college. Furthermore, there are about 63 academicians of NAS and 29 academicians of NAE who are coaching in the college.

#### **Aims for Development: To train the first-class scientists and engineers**

Though California Institute of Technology enjoys a small scale, it is promising. California Institute of Technology has already identified its developing aims and educational mission at the beginning of its foundation, that is, developing the school an excellent place to train the first-class scientists and engineers, and the purpose for personnel training is to meet the needs of education, government and industrial career. Adherence to this aim, numbers of excellent students graduated from here year after year. And among them, there are many notable scholars can be recognized as representatives. Wood, a geologist, invented the Seismograph. Linuspauling, the owner of Nobel Prize for twice, laid a foundation of molecular biology. Thomas Hunt Morgan is the originator of

modern genetics. Dale Burak is the founder of molecular genetics. And also Gell-Mann, a physicist, put forward Quark theory. Besides, there is Nobel Prize owner Roger Sperry who first found that the two brain hemispheres worked independently and the biologist Hood who invented DNA sequence analyzer. Though the school doesn't own high reputation in the educational history, its reputation in the world technology history cannot be replaced by others for the contributions made by the scientists here cannot be replaced. The biggest optical astronomical telescope and the find of the forces between atoms is only a small part of their contribution. They also show their talents in seismology and molecular biology. And they are admired by Quark theory and the discovery of universe. Everybody will be shocked by the great contributions made by such a small college. In there, science is the eternal theme. In there, the biggest modern lab in America is erected and the biggest optical astronomical telescope is made. Mr Qian, the reputation owner of "Father of space technology" and "two bombs and one satellite" in China, transferred from Massachusetts Institute of Technology to there in 1936 and became a student of the professor Von Carmen. He stayed here for 19 years and finally became an outstanding scientist.

### **Faculty team---High-class scientists and best research environment**

First-class teachers is the first priority for a university to become the one of the best. The most outstanding teachers can draw the attention of the best students, thus contributing to the tiptop research achievements; what's more, they are more likely to win the most support from other fields. Though California Institute of Technology is characterized with its smallness, it is outstanding enough and strong enough. It is not only targeting to be one of the top institutes in the world but also giving high priority in cultivating students to be elitists. The achievements of being unique and excellent are all endowed by its super-strong faculty team, which enables the institute to be outstanding. Astonishingly, California Institute of Technology has achieved an the most suitable ratio between teachers and students, in other words, 1:3, which is definitely difficult to achieve. Excellent students are the results of being instructed by the best teachers. Through its establishing history, attentions has been paid to the quality of the teachers by board of trustees and never changed more than 100 years. There is a classic case which can be the evidence of its emphasis on the cultivation of elitists and its respect for masters, that is, its attitude towards Linus Pauling's, who have won Noble prize for twice. In 1920s, California Institute of Technology is faced with a serious problem in finance. For the continuation of Pauling's research, the members of the board of trustees tried their very best to aid Pauling financially; though the construction of the chemistry building was forced to come to a halt because of the shortage of money, board of trustees tried every effort to spare him an experiment room. School also made an exception in prom. Being armed with the help from California Institute of Technology, and being assisted with a good researching environment created by California Institute of Technology, Pauling has achieved a lot. He has won the Noble Prize twice, respectively, Noble Prize in chemistry in 1954 and Noble Peace Prize in 1962. He has become an eccentric scientist of twentieth century, being honored as the only scientist who has won Noble Prize for twice in different fields. Same thing happened in 1930s. Beno Gutenbergs--- the most outstanding seismologist in the world, was invited to go join the team of California Institute of Technology. With the assistance of Beno Gutenbergs, enabling the center of world earthquake study transferred from Germany to California Institute of Technology. The legend of California Institute of Technology has been achieved with the assistance of masters in different fields and the creation of good researching and instructing environments for those masters.

### **Fundamental research----Encourage the crossover and exchange between the disciplines**

California institute of technology (CIT) has attached great importance to fundamental research since the school was set up. In the process of its development, the school insists on the fundamental research, focusing on the interaction and integration between subjects. Besides, the school promotes the collision and counter of subjects. The most outstanding characteristics of those scientists in California institute of technology CIT are profound theoretical foundation and wide range of knowledge accumulation. Many scientists have made great achievements in different areas. For example, two systems which seem to be irrelevant cannot only be related but done well by them. CIT has strict institutional guarantee for the characteristic. They have made explicit regulation about experts' attending to one another's seminar and new subjects discussed together. The training of students and the design of courses betray the school's focus on fundamental research and the interaction of different

subjects. Every college students, whatever he majors in, has to study math and physics for five terms, chemistry for two terms and biology for one term. In addition to science, they also need to complete twelve courses about humanities and social science. Schools are strict in the study of fundamental courses. And it takes almost two years to accomplish schools' heavy study schedule. Most students are used to staying up to study so that they forget to sleep. However, it's not easy to graduate from the CIT; about fifteen percent of students may fail the examination and can't graduate from school every year. The intersection between disciplines is also very convenient for lack of staff at the CIT. Many labs and teaching buildings are connected deliberately so that students can communicate with each other at any moment. Teacher can also freely adopt their unique teaching methods to encourage students who have different professional background to discuss with one another. This won't prevent the development of humanities although the theme of CIT is science. This is also based on the training needs of scientists and engineers. And one of the only six departments of the California institute of technology is the humanities and social sciences.

## **THE PROBLEMS EXISTING IN THE IDEAS OF OUR COUNTRY'S UNIVERSITY MANAGEMENT**

College of California Science has always maintained management with small quantity and high quality, which inspires us on how to establish the first-class universities and makes us reflect on our own management. Some scholars summarize the achievements of our country's high education, including the growing number of students, the expanding mode, and the progress of the teaching. Certainly, these achievements are obvious and hard to get. Meanwhile, the problems existing in our high education are various. Some are serious, which is undoubted fact. We should reflect on the management of our universities confronted with all kinds of problems. These problems prevent universities from performing their functions. Most importantly, they influence people's admiration for the universities.

### **Blindly seek for quantity**

As stepping into 21st century, most universities seek for larger scale, more majors, and high level, aiming at becoming a comprehensive university. Most of those universities have expanded their campus area, have increased the student amount. It's well known that the core competences of a university are its teaching quality and scientific research ability. However, these soft abilities take time to form. Because the effect of those competences can not be seen in a short time, many universities will not give priorities to them in a short-time construction in spite of their importance attached on them. Therefore, some universities begin to only seek for quantity growth instead of the improvement of quality. In order to show their achievements as soon as possible, some universities build a lot of buildings and set up various majors regardless of their teachers quantity. The competition of the application of doctors and PHDs goes fierce. Another phenomenon is that the mergers among universities go wild because all the universities want to be comprehensive universities, such as some technique colleges' desire to be colleges and some colleges' desire to be universities.

### **Much attention on official position and the despite of scholarship**

Another outstanding problem in universities in China is that the scholars pay much attention on the official position. Meanwhile, the scholars who gain much achievement would be given the official title, despite their will. As we all know, in terms of the organizational characteristics, university is an academic organization, the place where it aims to cultivate talents and permits the academic exchange. However, nowadays in many universities, the officialdom culture runs wild, and they don't proud of the scholarship but the official position. Academic activities pave the way for official position, and even there are so many officials which have become a trouble. On the one hand, to get an official position is the main reason why they engage in scholarship. If they don't get the position, they think their hard work is in vain, no matter how successful they are. On the other hand, school will be

thought have no respect on knowledge and talents if they don't give the official position to the scholars who may have a little achievement. At present, there are less and less scholars who can do research intently and keen on the subject they pursue. There are many experts who combined their academic research with their own achievements. The reason why they do academic activities is to get fame and wealth. There are research achievements with high level in universities in China, but there are a few academic masters. One of the important reasons is that there is not a good environment for research and the fickleness among the scholars. Many experts have too many administrative affairs to do research intently, which leads to the decline of the academic achievements. The management of scholarship is becoming more and more political due to the much attention on official position and the despise of scholarship among scholars. Politic and scholarship are in different areas. The politic demands the minority should submit to the majority, and it demands success. However, for scholarship, the truth only lies in the minority people, and it permits failure. Thus, they have many differences in terms of the management. Currently, some academic research have become the explanation for political decision, the science has become the hermeneutic, and even for the science of humanity and culture has become the main contents of scholarship management which requires countermeasures and strict management. Nevertheless, they are all against the spirits of seeking the truth, goodness and beautiful in university.

### **Market-oriented Education**

In education practice, universities of China tend to follow trends, which reveal a lack of core value and characteristics of their own. One of such examples is that features of universities change over a short period of time. Universities are expected to set a moral example for general public and take a leading role in reform and innovation. The core of universities is to produce and spread knowledge, which can be realized by education of students, academic research, social services and culture communication. The slogan "Turn knowledge into productivity" is not appropriate for the development of universities but for that of corporations. However, some universities are eager to set up commercial systems to make instant profits. Meanwhile, admission policies and teaching methods serve for the market demand. Technical items in business such as production and marketing become guides for education. It's a shame that many universities no longer take as priority how to cultivate a sound personality and all round development of students. Instead, the focus of universities is how to help students hunt a job and make money, which is not a core living. Several years ago, new majors like foreign languages and IT training were introduced to almost every university in China, which resulted in the unhealthy development of these majors and reduced quality of students. Apart from market-oriented education, a lot of academic researches focus on market demand. Therefore, basic academic researches don't get enough attention they deserve. Market-oriented education contributes to the lack of distinctive education in China.

### **CONCLUSIONS**

The idea of running a university refers to where a university goes in essence, which is the soul of the development of university. The article sketches out the idea of California Institute of Technology which is a success in its small but excellent higher education by case analysis. The core element is penetrated into on the process of becoming the first-rank around the world, and then reflects problems existing in China's ideas. For example, pursuit larger scale, pay more attention to get into politics and becomes superficial.

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