Comparative Study on the System and Diploma between Université and the Grande écoles in France

Liu Yang
Institute for Clean and Renewable Energy
Huazhong University of Science and Technology
Wuhan, China
liuyang@mail.hust.edu.cn

Yi Hui
Institute for Clean and Renewable Energy
Huazhong University of Science and Technology
Wuhan, China
yihui@mail.hust.edu.cn

Abstract—Chinese engineer and science masters diploma reform is growing vigorously and the distinguished characteristics of diploma construction are strengthening and improving. This article studies and compares the differences between the universités and the grande écoles in France in the schooling system and diploma to explain that the greater openness and fluidity between the elite and mess education and the mechanism of yearly academic certification not only make the students adapt to and service society better but also is the intrinsic driving force in the talent training in the French double-track higher-education.

Keywords—France Universités Grandes écoles

I. INTRODUCTION

France's higher education has a long history and a unique structure of double-track education around the world. There are both universités and grandes écoles. Universités as the theme in higher education are public institutions and run the multidisciplinary, fundamental teaching and research activities.

Grandes écoles was also originally founded by the nation and their most important role is training engineers for national institutions including military and civilian agencies (defense, equipment, transportation, industrial, telecommunications, agriculture institutions, etc). Later, the private and business enterprises join to found the grandes écoles. Grandes écoles must be authorized and recognized by the French government. However, they have real autonomy in the organization and teaching. Grandes écoles cover higher engineering schools, art colleges and colleges of higher business and management and implement the elite education.

II. SYSTEM COMPARISON

A. Different Entrance Requirements

French Universités implement public education and 90% of the students attend nearly the national 90 universités. Universités carry out the registered system and open style teaching and the high school graduates enjoy full rights in choosing their professional fields and need not participate in any entrance examinations. However, the students can obtain the relevant diploma on the condition that they pass the graduation exam after they have acquired enough ECTS. In short, French universités implement the "lenient entry, stringent exit" mode, which not only maintains the people's right of being educated but also ensures the quality of talents.

On the contrary, Grande école implement the elite education and have smaller scale. The students have to pass the entrance exam to be admitted into the Grande écoles. About 10 percent of the high school graduates can enter the classes préparatoire aux grandes écoles after the rigorous selection. Those students studying in the classes préparatoire aux grandes écoles can participate in the "concours " —unified national examination and only about 10% of them can pass the exam to be the best.

B. Stage of Universités

There are about three stages in universités' according to the French traditional educational system and diploma settings. Each stage has the corresponding diploma and every student can get a diploma by the end of each academic year, namely the yearly academic certification (Table 1).

Universités will award the successful students DEUG (diplome d études universitaires générales) after the first two-year study. The second stage is the following two years. But the students will get a "Bachelor" diploma (licence) at the third year and the maitrise diploma at the forth year. The maitrise is equivalent to the Chinese undergraduate diploma. The third stage is similar to the Chinese graduate education. In the fifth year, the students can get a DEA (diplome detudes approfondies) after taking more in-depth courses, attending seminars and passing the thesis defense. DEA diploma implies he or she is qualified to study for PhD diploma. The students can get doctorate (doctorat) diploma through studying, writing papers and passing the defense in three years or longer.

With the development of European Credit Transfère System (ECTS) and the implementation of European unity LMD (licence-master-doctorat), LMD educational system is wildly popularized in the French universités, which is commonly called "three years (Bachelor) - five years (Master) -eight years (Doctor) " in China and the traditional diplomas of DEUG, Maitrise, DESS and DEA are gradually canceled at the same time. In fact, these French diplomas have their own
intrinsic value, and they are still used as transitional, suitable diplomas for domestic universités. The guiding ideology of DESS and DEA also have the practical significance. As the result, French higher education implements the new school system from the autumn of 2005 and actually set up two masters: master of research (master de recherche) and professional master (master professionnel)—the fourth year and fifth year in Universités become first year (M1: master 1) and second year of master diploma (M2: master 2).

Some Universités also set up affiliated IUT (insitut universitaire de technologie) or IUP (institute universitaire professionnalisé). IUT is two-year system. After graduation in IUT, students can get DUT (diploma universitaire de technologie). They can study further for one year more to receive DNTS (diplome national de technologie specialisée), which is equivalent to Chinese bachelor diploma. In the three-year school system, IUP asks students to start courses from the second year. Student can receive a maitrise and a engineers title (ingénieur maitre) after two-year graduation in IUP or receive a master diploma—DRT(diploma de recherche é technologique) with another one year advanced study[1].

Other Universités have a two-year diploma DEUST(détes universitaires scientifiques et techniques) or a three-year professional bachelor (licence professionnelle) and a three-year university practice diploma (magistere) as well as the four-year Bachelor diploma of science and technology (MST: maîtrise de sciences et techniques) and Graduate Diploma in Management Studies (MSG: maîtrise de sciences de gestion).

C. Stage of Grandes écoles

Grandes écoles or engineering education is usually divided into two stages. The first phase lasts two years and the second phase is three years, which is equivalent to Chinese five-year master diploma. After graduation from the high school, students apply for Grandes écoles through different channels (Table 1). Some high schools open two-year CPGE (Classes

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### TABLE I. SCHOOL YEAR OF UNIVERSITIES AND GRANDES ÉCOLES

<table>
<thead>
<tr>
<th>LMD</th>
<th>ECTS</th>
<th>COURSE TYPE AND OBTAINABLE DIPLOMA</th>
<th>AGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>PhD</td>
<td>420</td>
<td>PhD</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td>360</td>
<td></td>
<td>25</td>
</tr>
<tr>
<td>Master</td>
<td>300</td>
<td>DEA, DESS, DRT</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td>240</td>
<td>Maitrise, MSG Bachelor, magistere</td>
<td>21</td>
</tr>
<tr>
<td>Bachelor</td>
<td>180</td>
<td>Licence, licence professionnelle, magistere</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>120</td>
<td>DEUG, DEUST</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>60</td>
<td></td>
<td>18</td>
</tr>
</tbody>
</table>

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Preparatoires aux Grands écoles) and students participate in the Grande écoles entrance exam after graduation. Those passing the entrance exam can enter three-year Grandes écoles. Students get engineering certification after graduation, which is equivalent to the Chinese five-year master diploma. The CPGE is regarded as the part of higher education and its graduation diploma is equivalent to DEUG. In addition, the Grande écoles itself also set up the two-year preparations integrees. After graduation, students are either selected or participate entrance exam. In addition to the preparatory classes, students who get DEUG diploma or DEUST or DUT diploma after learning in IUT can apply to participate the Grande écoles entrance examination.

One of the features of French higher education is emphasizing the diversity. Universités don’t rule all the lands and a lot of Grande écoles of higher engineering education are considered as a special higher vocational education which has better quality and higher level, recruits the best or the most characteristic students, cultivates intelligent talents for various industries.

III. DIPLOMA COMPARISON

Diploma in France is divided into uniform national diploma and diploma issued by the education authorities. The French government has a strict control of the diploma. The uniform national diploma (mainly including bachelor, master, doctor) is created and managed by the national government. The national diploma is usually issued by the ministry which is responsible for the higher education as well as other relevant ministry such as the ministry of national defense and the ministry of industry, etc. Private universités can set national diploma and courses, but has no rights to issue these diplomas independently and has to be processed by the affiliated universités or public higher institutions. In addition, the French université diploma can be awarded by national government as well as each université, but the université is
strictly supervised by the central government about the issue of national diploma.

Many kinds of education institutions themselves can issue the institutions diploma, with the qualifications given by the state. Engineer diploma is such a diploma issued by the grande écoles. Engineer diploma and master diploma have fully the same effect, but the engineer diploma which has proof of academic knowledge and recognition of professional ability has both academic and professional characteristics.

CTI (Commission des Titres d’Ingénieur) is the special agency that belongs to the French ministry of education and is responsible for the engineer diploma education certification. One of its major duties is to evaluate and certificate the engineer cultivation model in the higher engineering education of France. It’s similar to the American ABET(Accreditation Board for Engineering and Technology) and the German ASIIN (Accreditation Agency for Study Programs in Engineering, Informatics, Natural Sciences and Mathematics). Public universités are authorized the qualification by the decision made by relevant ministries according to the opinion of the CTI. Private universités are authorized the qualification from relevant ministries after the CTI making the decision. In France, Grande écoles must accept the assessment and certification by the CTI on a regular basis, and only qualified ones have the qualification to issue engineer diploma. Engineer qualification certificate also contains awarding of French national master diploma. In addition at the beginning of each year, French ministry of education will release a list containing the name of universités that can award the title of engineer and business universités with their diploma granted the national certification.

Engineer diploma includes a variety of engineer titles. Most of engineer diplomas are awarded by the universités. If the two universités are combined, of which one is a French université, another université is in France or abroad school, the diploma can be awarded jointly. If the engineers do further study at least a year after obtaining diploma, they will get a professional engineer title. From 1934 up to now, people can be granted engineer diploma awarded by the state if he or she can paly engineering functions and get certified of his corresponding experiences and abilities in his or her individual professional life. The major difference between this diploma and others is that the engineer diploma awarded by the state not by the universités, and only grant to the people who engage more than five years in engineering fields. Although the engineer diploma awarded by professional experience, engineer diploma awarded by universités or by Grande écoles have the same level of education, but the latter is more closely-watched and respected by the attention in the society.

France is the country that has the most kinds of diploma in the aspect of education. The classification of French diploma not only facilitate for students to identify their learning goals, but also facilitate for companies to choose and select talents. It provides students with clear and accurate positioning as well as flexible and humanism selection, coinciding with the characteristics of strong plasticity for young people.

IV. Conclusion

In the European bologna process, France launched a series of positive reforms. European unification LMD system and mutual confirmation of ECTS credits has broken French over-finely subject classification and the divisions of distinct boundaries, endowed with greater openness and fluidity, not only created more opportunities for communication between the double-track of French higher education but also made the French higher education and European distribution channels more smooth. By comparison, Chinese higher education system is relatively close on the whole, which is lacking of effective communication between different types of colleges and universities.

Since the college expansion in 1999, Chinese higher education has changed from elite education into mass education rapidly. The increased number of students and the shortage of teachers have caused the decline of teaching quality. The measures French higher education undertaking such as encouraging the convergence between grandes écoles and universités, balancing the elite and mass higher education, promotion on narrowing the gap in education quality and enhancing the balanced development of higher education provide us good examples.

Compared with fou-year bachelor and three-year master diploma in China, French higher education save more resources and training time. The mechanism of yearly academic certification can guide students to prepare for their career and integrate quickly into society with the consideration of taking care of the students’ actual situation and needs better.

REFERENCES