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THE NEW CHALLENGES TO INTELLECTUAL PROPERTY EDUCATION AND TRAINING FOR THE NEW ECONOMY; POLICY AND INSTITUTIONAL CONSIDERATION

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THE NEW CHALLENGES TO INTELLECTUAL PROPERTY EDUCATION AND TRAINING FOR THE NEW ECONOMY; POLICY AND INSTITUTIONAL CONSIDERATION

1. SCIENCE – TECHNOLOGY, SOCIAL TRANSFORMATION AND INTELLECTUAL PROPERTY

Human society has gone through agricultural society, industrial society, and now has stepped into information society. In agricultural society, people mainly embarked on crops farming and relied chiefly on manual labor, the economic structure was self-sufficient and the commodity economy was not developed. In industrial society, steam engine and electric power appeared, mechanical motive power began to replace some part of manual labor, manufacturing industry developed as the product was transported from on place to another, transportation expanded, commodity economy was formed.

In industrial economic times, technical invention brought rich and generous profit to industrialists. The circulation of commodity stimulated the generous applications of trademark and requirements to protect the exclusive right for trademark. The development of printing technology led to the issue of copyright protection. The intellectual property system came into being along with the formation of industrial society. In 1946, the first electronic computer in the world, ENIAC, appeared, then information technologies, such as integrated circuit, communication satellite, optical fiber, compact disc, digital communication network and so on, were employed one after another. Electronic computer has permeated through every corner of society. Economic development rely more and more on people's intelligent labor. The number of intelligent workers increased rapidly. The materialization period of intelligent achievement shortened quickly, see Figure 1[1] and Table 1[2].

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[1] Congress of the United States Office of Technology Assessment, Intellectual Property Rights in an Age of Electronics and Information, p.233.

Source: John McHale ,World Facts and Trends(New York: Collier Books,1972), p.3, as cited in Magda Cordell McHale, Facts and Trends: The Changing Information Environment: An Information Chartbook (Rome: Intergovernmental Bureau for Informatics,1985), p.4.

[2] See the lecture by Mr. Frederick Mostert, President of International Trademark Association in Peking University School of Law, April 3,1999

Figure 1. The speed of change: Intervals Between Discovery and Application in Physical Science

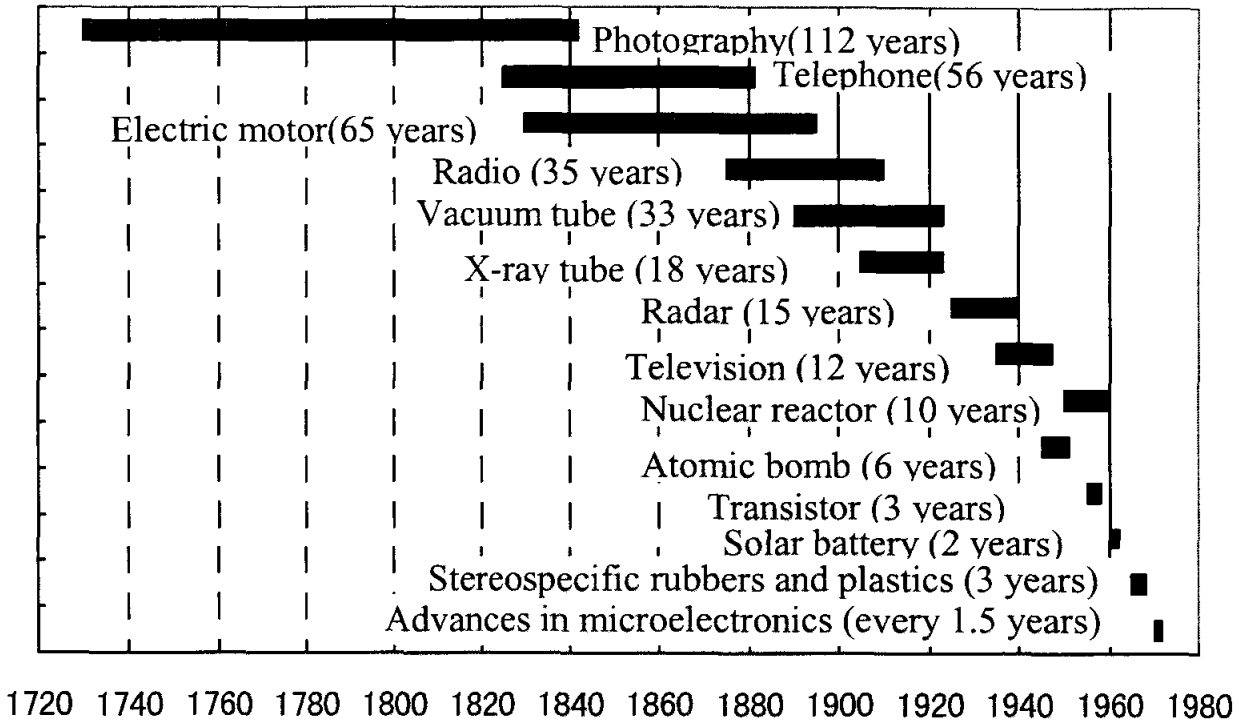


Table 1

Grow to 50 million of	Radio sets	Television sets	Internet users
Time(years)	30	13	4

If we say mechanical motive power replaced some manual labor in industrial revolution, then in information revolution electronic computer (which is commonly called *diannao* in Chinese, which means electronic brain) replaced some mental work. In information society, the proportion of intelligent labor in social economic and cultural activities has risen, and the number of people engaged in intelligent labor has increased rapidly, all of which has necessarily resulted in the increase of the degree of intellectual property protection and the internationalization tendency of protection.

Human labor includes manual labor and mental labor. The direct "product" of mental labor is intelligent achievement, which is unmaterialized in information form, such as a poem, design of a tangible product, a technological process, and so on. Though tangible product contains ingredient of mental labor, mental labor cannot produce tangible product directly. One's brain can work out how to make a piece of pen, but it only can be a pen in imagination, and cannot be a real

pen for writing. Tangible product is the result of materialized imagination, which is produced through the processing of raw materials by using tools.

Today in this civilized society any tangible material resources is the crystallization of mental labor and manual labor. Tangible thing has property value, which means it has dual property of use value and exchange value, so it can be exchanged in market as commodity. This essay will discuss whether we should admit that intelligent achievement also has property nature. Intelligent achievement has use value, otherwise there will be no plagiarism and imitation. But do we admit that intelligent achievement has exchange value, which means that its character of exclusive use can be exchanged (licensing, assignment, etc.) in market like normal commodity? If the answer is positive, it essentially confirms the character of property right of this intelligent achievement.

Intelligent achievement has the following features compared with tangible product. Firstly, it is the direct fruit of human being's mental labor, secondly, it belongs to the category of information, thirdly, the use of intelligent achievement has no consumption, fourthly, it can be delivered easily and reproduced. These above-mentioned features will certainly make the client lose the capability for controlling the use of intelligent achievement. For example, one can actually own and control the use of his bicycle (things), but for a bicycle he invented (intelligent achievement), he can not actually monopolize and exploit his invention, unless law vests this right to him. When we advanced continuously from agricultural society, industrial society to information society, it is satiric that the client's actual control over the use of his intelligent achievement is declining.

In history, various countries' law provided protection to real right from the early time . For example, *jus Civile* Law in Rome before the century already provided protection to real right. But the protection to intellectual property by law in every country began much later. Venice Patent Law formulated in 1474, is the first law giving protection to intellectual property in the world. A law system must bring some actual junctions to society. At the end of the 18^{th} century, with the development of industrial revolution and commodity economy, many countries in the world began to make patent law. Paris Convention for the Protection of Industrial Property signed in 1883 is the first international convention to protect intellectual property in the world as a whole. Only when science, technology and commodity economy have developed to a certain stage can intellectual property system be produced. This is why the intellectual a property system appeared after and not before the industrial revolution.

The emergence of intellectual property system is a great social progress. It confirms that some intellectual achievements have property right quality, like tangible things, and this will undoubtedly produce positive influence on social progress, the development of science, technology and economy, the prosperity of literature and art. More and more people have recognized that the progress of science and technology is a critical factor in the increase of national economy. On July 14, 1967, the Convention Establishing the World Intellectual Property Organization was signed at Stockholm. On April 15, 1994, the Agreement on Trade-Related Aspects of Intellectual property Rights, Including Trade in counterfeit goods was signed at Marrakesh .

Intellectual property system was produced only when social system, economy, science and technology had developed to a certain stage. It is the result of balancing various social interests. On the whole, the establishment of Intellectual property system would produce positive influence on the development of economy, the progress of science and technology and the prosperity of

literature and art. The function of Intellectual property system is a fact that cannot be ignored by today's society, "...recognizing that intellectual property rights are private rights" (from TRIPS).

CONCLUSION

- Science and technology promote social advancement;
- Social advancement produces intellectual property system;
- Intellectual property system needs IP professionals to serve society;
- Society requires that education system should be regulated to bring up qualified IP professionals.

1. General Education in China

Before one graduates from a university in China, he may have spent six years in primary school, six years in middle school (three years in junior middle school and three years in senior middle school), and four years or more in the university. Generally, a student enters primary school at age of 6-7 years, so when he graduates from the university he will be about 22-23. If he would like to pursue a master's degree or even a Ph.D., he has to spend another three or six years. After he has got a doctor's degree, he will be above 28 years old.

Table 2

	Primary school	Middle school	Bachelor's Degree	Master's Degree	Ph.D. Degree
Schooling length (years)	6	6	4/5	3	3/4

3. Education System in China Law School

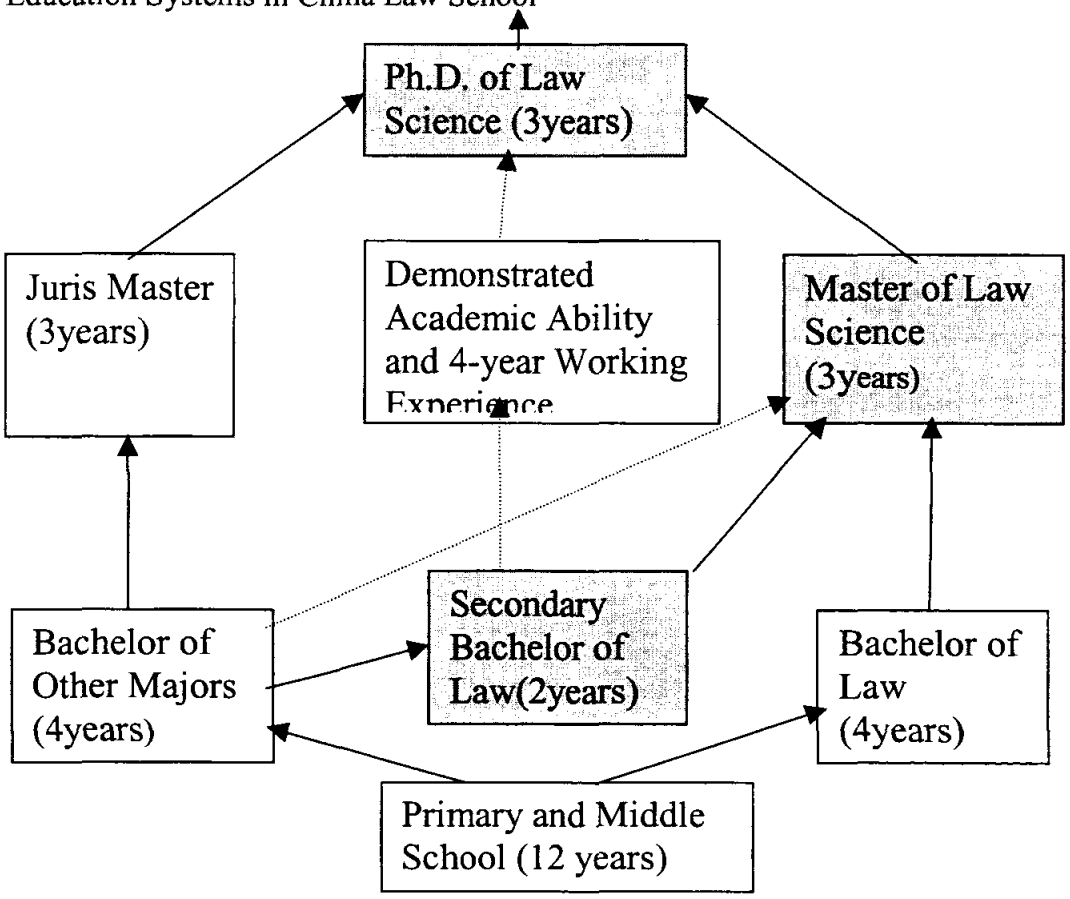
- Bachelor of Law Program in China: four years, 13 main courses, electives. See table 3.

Table 3 Basic Courses of the Bachelor of Law Program (BL)

No.	Course Title	Course Item	Credit
1	Jurisprudence□I□II□	Required	4
2	Legal History of China	R	3
3	Constitutional Law	R	3
4	Administrative Law and Procedure	R	4
5	Civil Law (I, II, III)	R	3
6	Criminal Law □I□II□	R	4
7	Intellectual Property Law	R	3
8	International Economic Law	R	3
9	General Theory of Commercial Law	R	2
10	International Law	R	4
11	Civil Procedure	R	4
12	Economic Law	R	3
13	Criminal Procedure	R	4

- There are several different arrangements of post-graduate legal study in China.
  1) To a legal major undergraduate, → (Master of Law Science);
  2) To a student graduated from other majors but law→ Master of Law Science, Juris Master or Secondary Bachelor of Law;
- Entrance Examination of MLS (Master of Law Science) and JM (Juris Master)
- See Figure-2

Figure 2. Education Systems in China Law School



4. The Education System of Intellectual Property Law in Peking University

With a continuing high-speed economic growth, China begins to step into the age of rule of law. At the end of the 80's and the beginning of the 90's, China has launched the IP system. Since the 90's, our nation has reached the consensus that IP protection should be vital for social development and economic growth. Currently, the Chinese government, courts, law firms, companies and other sections, urgently need IP specialists. It is estimated that in the future ten years, the amount of IP specialists needed in China will be more than 10,000.

As IP has a close relationship with technical innovation and enterprise management, many government sections hope that the IP graduate would have the background knowledge of sci-tech, or the skills of enterprise management. Besides, these units have a high expectation on those students' ability of foreign language. In order to satisfy China's crucial need of IP specialists, Peking University launched PKU Intellectual Property School to train students in 1993.

Peking University provides three IP programs

First, Secondary Bachelor Program. Most students in this program have got a Bachelor of Science or Bachelor of Engineering before. Other majors are economics, business management or foreign language. During the two school years, the students should study the basic law courses and 4-5 courses pertinent to IP, such as Copyright Law, Patent Law, Trademarks Law, Competition Law and so on. See table 4.

Table 4. Curriculums for Secondary Bachelor of Law Program (SBL)

No.	Course Title	Course Item	Credit
1	Civil Law	R	4
2	Administrative Law and Procedure	R	4
3	Criminal Law	R	4
4	Criminal Procedure	R	4
5	Constitution Law	R	2
6	Civil Procedure	R	3
7	IP Introduction and Patent Law	R	3
8	Economic Law	R	3
9	International Law	R	3
10	Legal English	R	2
11	Patent Documentary Search	R	4
12	Contract Law	R	2
13	Trademark Law	R	2
14	Copyright Law	R	2
15	Unfair Competition Law	R	2
16	Legal Protection of Computer Technology	R	3
17	Enterprise Law and Corporation Law	R	3
18	Degree Paper	R	5
19	Fiscal Law and Taxation Law	Controlled Selective	3
20	Financial Law and Banking Law	CS	3
21	International Trade Law	CS	3
22	International Investment Law	CS	3
23	International Technology Transfer	CS	2
	Other Free Selective Courses	FS	

Second, MLS Program. The major admits all undergraduates no matter whether they have not obtained a bachelor of law. But the program requires that all the students have a basic legal knowledge before admission. After the study, the students can understand IP Law thoroughly and will have the capability of doing independent legal research in IP fields. See table 5 and table 6.

Table 5. General Courses for MLS Students Majoring in IP

No.	Course Title	Course Item	Credit
1	Civil Law (General Introduction)	CS	3
2	Civil Law (Property)	CS	3
3	Civil Law (Contract)	CS	3
4	Family Law	CS	3
5	Seminar on Intellectual Property	CS	3
6	Commercial Law □I□II□III□	CS	2
7	Economic Law	CS	3
8	Environmental Law	CS	3
9	Labor Law and Social Welfare Law	CS	3
10	Trade Law	CS	2
11	Taxation Law	CS	3
12	Civil Procedure	CS	3
13	Financial Law	CS	2

Table 6. Selective Courses for MLS Students Majoring in IP

No.	Course Title	Course Item	Credit
1	American and British Law of IP Law	S	3
2	Studies in Copyright Law	S	3
3	Philosophy of Intellectual Property	S	3
4	Science, Technology and Law	S	3
5	Computer Law	S	3
6	Studies in Cyber Law	S	3
7	Law of Economic and Technical Contract	S	3
8	Studies in Industrial Property	S	3
9	International Technology Transfer	S	3

Third, Ph.D. Program. See table 7. Generally, this program only admits MLS program graduates. Every Ph.D. candidate is guided by one supervisor. After finishing their required curriculums, they spend most of their time in academic research. Before they graduate from this program, they should submit a degree paper and defend it before an academic committee in Law School. The main purpose of the program is to foster the participant's ability of acting as senior teachers or researchers in IP field. Of course, this does not exclude the possibility for him to find a position in courts, government offices or law firms.

Table 7. Parts of the Courses Ph.D. Students

No.	Course Title	Course Item	Credit
1	Frontier of Legal Research	R	3
2	Special Topics in IP Studies	R	3
3	Philosophy of IP Law	R	3

The number of graduates of the three programs in PKU IP School is about 50 per year, which includes 30 of the Secondary Bachelor Program, 15 of the MLS Program and 5 of Ph.D. Program (beginning from 1999). The whole number of all the graduates majoring in IP in China is about 200 per year. Now there are more than 1,000 qualified IP professionals. As I mentioned above, China needs more than 10,000 IP professionals in the next 10 years. There is a great gap between the social demand and supply, so IP graduates in China have a very bright employment prospect. See table 8, figure 3, figure 4 and figure 5.

Table 8. Jobs of 1993-1999 Classes Secondary Bachelor Graduated Students

Classes	93	94	95	96	97	98	99	sum
Government department	2	11	8	3	3	5	6	38
Teaching&administration in university	2	1	0	1	1	2	1	8
Court&judicial department	2	2	5	0	3	2	1	15
Company&enterprise	9	4	12	13	5	14	17	74
Law firm	3	6	4	10	4	5	2	34
Continue study	11	6	14	2	2	2	1	38
Other	0	0	0	2	4	1	1	8
Sum	29	30	43	31	22	31	29	215

Figure-3 Jobs of 1993-1999 Classes Secondary Bachelor Graduated Students

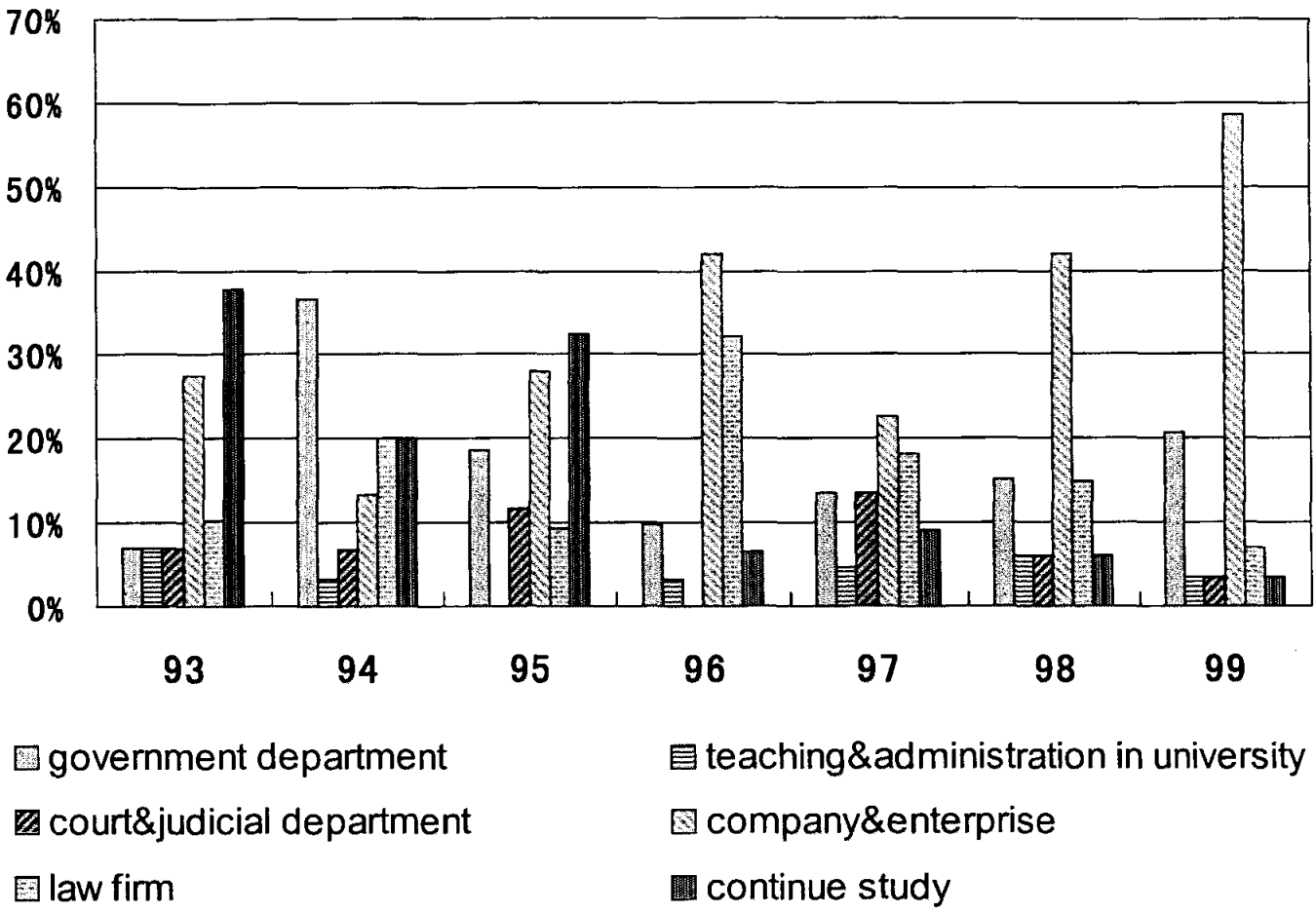


Figure 4 Jobs of 1 993-1999 Class (7 years) Secondary Bachelor Graduated Students

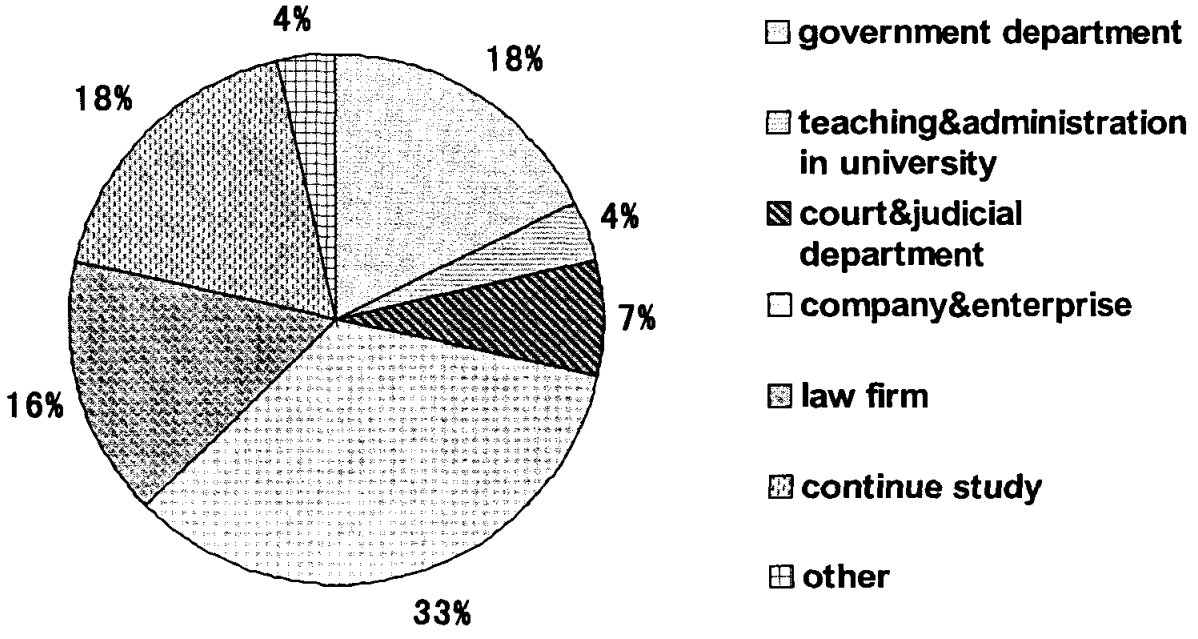
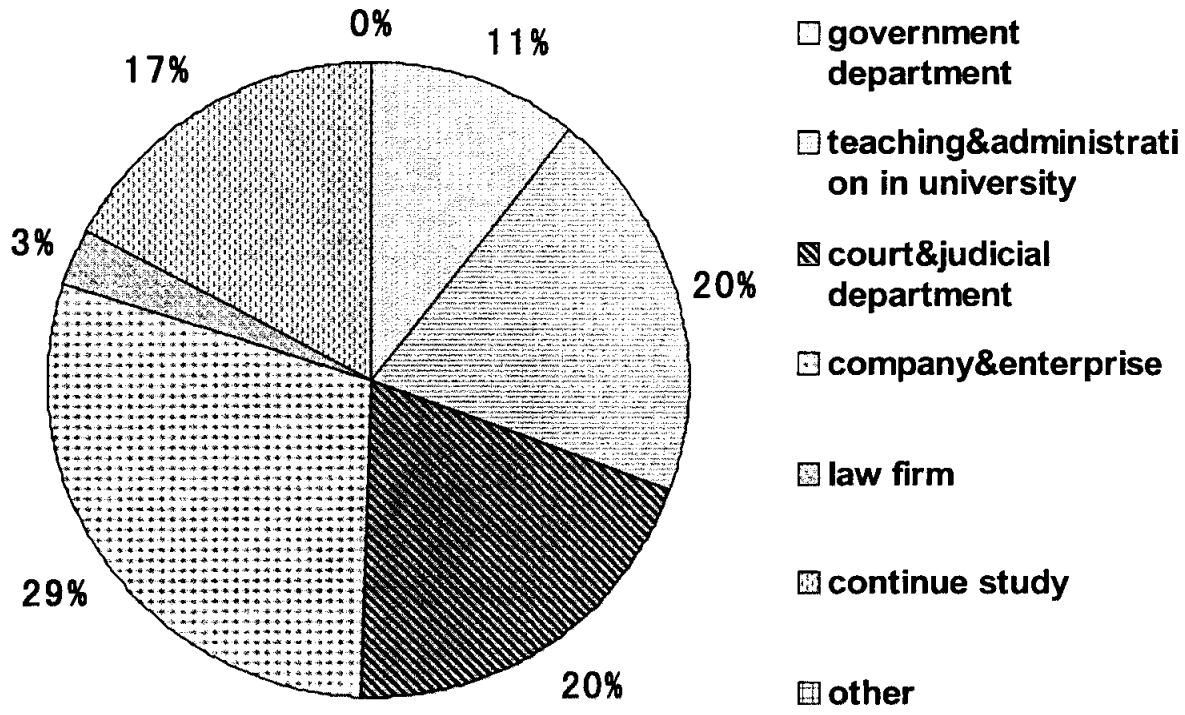


Figure 5 Jobs of 1993-1998(6years) Classes MLS Graduated Students



Our Experiences of IP Education:

- Admit undergraduates whose majors are science and engineering.
- Encourage students to do social investigation or internship outside campus.
- Maintain a good relationship with the legislation departments, courts, and administrative agencies.
- Open the School to the outside world.

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