## II. Education –*Foster Capable Inventors and Creators*

**Intellectual property is the product of intellectual activities by the human beings. It is therefore, necessary that education be provided for creativity and aspiration. Potential creators and supporters of intellectual property are not limited to students at school. Social workers are another source of talents. Teachers should recognize the importance of intellectual property and provide lessons to raise their creativity. Programs should include more practical aspects including technology transfer and entrepreneurships.**

**[Problems]**

1) There are two aspects in education on intellectual property. One is education to bring up human resources to create intellectual property. The other is education to let people know about the importance of intellectual property.

2) Education closely relates to the reform of university system. But suggestions here are not limited to education at university. They are applicable to education at elementary, mid and high school. What is essential is that one of goals is to bring up students who are with creativity and aspiration.

3) Basic knowledge of students in elementary, mid and high school has been lowered, particularly in mathematics and natural science. Many colleges and universities find it indispensable to have supplementary classes for the newly enrolled students before they start regular classes. Without appropriate measures for this "intellectual crisis," human resources capable of producing intellectual property would be less and less in near future. In order for Japan to be an IP-oriented country in the 21st century, the classes of mathematics and science, among other subjects, should be improved in quality and quantity, and the scholarly level should be enhanced nationwide. This is a matter of urgency for the future of Japan.

4) Recipients of intellectual property-related education have so far been limited to specialists including college students majoring in law, practitioners handling IP transactions and corporate people engaged in filing/prosecution of patent applications. IP education should be across the barrier of departments in college or corporation.

**[Suggestions]**

25. Originality be respected

Students should be taught at elementary and mid school that originality in writings, music and ideas is valuable. They should be taught that the product of intellectual work is not available without efforts and sweats by the creators. In addition to conventional ethical mottos such as “Respect for Life”, “Value of Money” and “Don’t Steal”, “Respect for others’ idea” should be taught at school.

26. Educational system for admiring the creation of intellectual property

For creative students, appropriate admiration of their intellectual property would be the best incentive. Educational system has to be reformed so to introduce such incentive evaluation. For example, one possible way is giving a credit for students who made an prominent invention.

27. Program for entrepreneurship

School education should cover a class of entrepreneurships. In Switzerland, for example, high school students and college students often assist venture businesses and make new inventions. Japan should adjust the system so as to allow such flexible approaches. As teaching staffs, retired and experienced researchers may voluntarily participate in the class for more practice-oriented subjects. Students can learn how to conduct research and development and how to obtain a patent.

28. Training for social workers

As part of life-long education, social workers should be given opportunities for entrepreneurship education. Learning opportunities should not be of stereotype. They should be offered any time and any place through the Internet

29. Learn through experience

Students of elementary and mid school should be given chances to make an invention as a summer time assignment. They should experience searching for prior art through electronic libraries and sophisticating their own inventions. Programs may include drafting a specification and drawings. They will realize the joy of completing their own ideas for the purpose of patent application, and the state of art.

30. IP lessons to teachers

It has called a social attention that teachers who can instruct PCs are far less than what are expected at elementary, mid and high school. To make the matter worse, almost nobody can teach IP-related subjects at these schools. IP education should start with school teachers. IP practitioners should be utilized as part-time teachers.

31. Teaching Materials

Currently, the JPO prepared a sub-textbook on industrial property for elementary, mid and high school students. It also prepared a material on multimedia. Upon request, a copy of these materials is available for schools. From now on, IP materials should also be prepared for the potential readers including corporate managers. Such materials should be easily available through the Internet.

32. Self-Learning of IP through Internet

It is suggested that a system for self-learning of intellectual property is provided. For example, the Japanese Patent Office may provide mid and elementary school students with a program for an "idea contest in summer vacation" through the Internet. Participants to the program could have an easy access to a daily lesson for 20 days through their home personal computers. Such a program would deepen the understanding of students on intellectual property.

33. Mathematics and Science Education

In 2002, a new "General Category Class" becomes compulsory for public school. We believe this class should be used for the purpose of enhancing the level of calculation skills and fundamental knowledge in natural science. Each school has a discretion to choose the subjects for the General Category Class. Currently, English conversation, moral discipline and voluntary experience are on the top list. However, with a clear message that the government places a priority to the class of, among others, mathematics and natural science, many school will be able to plan out the content of the General Category Class more easily.

34. Use mass media for IP enlightenment

Opportunities should be sought as much as possible to allow mass media to release

more news on IP and new technology information. This will enable citizens to have better understanding on the necessity of IP. The New York Times, for example, has a regular column for new patents and inventions and often cites editorial opinions on IP issues.