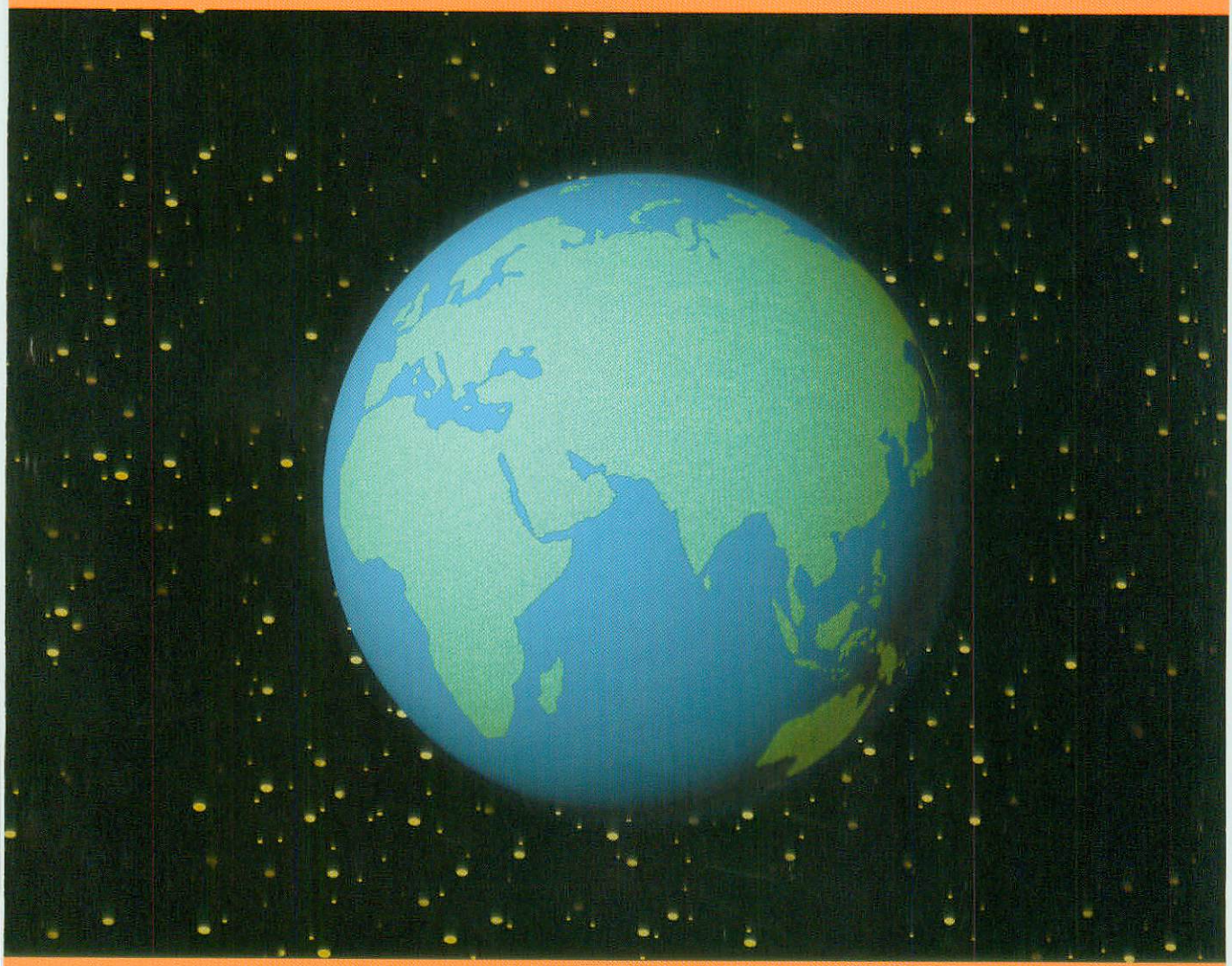
EDUCATIONAL CURRICULUM DEVELOPMENT



AICHI UNIVERSITY OF EDUCATION
JAPAN

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The development and publication of this monograph was supported by JICA(Japan International Cooperation Agency) and Aichi University of Education.
We, authors would like to express our sincere gratitude for supporting our publishing this book to Mr. Norio Matsuda, Director General of JICA CHUBU and Dr. Ken-ichi Tahara, President of Aichi University of Education.

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Printed in Japan

ISBN 4-9901927-1-0

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Basis of Education in Japan

Japanese Education System

Atsushi MIKAMI

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1. Background information

Japan's modern society began in 1868. Rapid modernization was realized through instruction by Western "hired foreigners." A modern education system was established in 1972, and a European-style, multiple-ascending-path school system was introduced.

In 1886, elementary school (a four-year system: a six-year system from 1908) was regulated as compulsory education. In 1894. Japan was victorious in the Sino-Japanese War, and in 1900, elementary school became free of charge. Following victory in the Japanese-Russo War in 1904, the school attendance rate exceeded 90% between 1910 and 1920.

After World War I, secondary education became diffused.

From 1920 to 1940, industry progressed, and university education also became gradually diffused.

After World War II, Japan was occupied and governed by the Allied Forces. The education system was switched to an American-style, single-ascending-path school system, and junior high school (a 3-year system) was also made compulsory, and free of charge, in 1947.

From 1950 to 1970. industry progressed further, and the rate of students who advance to a senior high school exceeded 90% between 1970 and 1980.

After the 1980s, the rate of students who advance to a university rapidly increased. to be about 50% today.

boards of education), mainly handling of lifelong study

2. Outline on the education system in Japan

2.1 Education laws: mainly the "Constitution of Japan" and the "Basic Education Law"

2.2 Educational administration: Ministry of Education, Sports, Culture, Science and Technology prefectural boards of education municipal boards of education

Prefectural boards of education: Appointment and dismissal of public schoolteachers (elementary. junior high, and senior high schools): management of public senior high schools: and instruction, advice, etc., toward private schools and municipal boards of education

Municipal boards of education: Management of public elementary and junior high

schools (teachers are dispatched from prefectural boards of education), mainly handling of lifelong study

2.3 School system

Classification	School type	Term of study	No. of schools	No. of teachers	No. of students	Remarks
Pre-school education	Kindergarten	1 to 3 years	schools 14,174	persons 110,000	persons 180,000	
Elementary education	Elementary school	6 years	23,633	410,000	7,230,000	Compulsory education
Secondary education	Junior high school	3 years	11,134	250,000	3,750,000	Compulsory education
	Senior high school	3 to 4 years	5,450	260,000	3,810,000	
High education	University	4 to 6 years	702	160,000	2,800,000	Including graduate schools
	Junior college	2 to 3 years	525	10,000	250,000	
Special education	School for the blind School for deaf-mutes School for special-needs children	6 years for the elementary division 3 years for the junior high division 3 years for the senior high division	995	170,000	960,000	In any school, elementary and junior high divisions are compulsory education.

Kindergartens are basically coeducational private schools. The rate of children who attend kindergarten is about 60%.

Elementary and junior high schools are basically coeducational public schools, but there are also private schools exclusively for boys or girls. The rate of children who attend elementary and junior high schools is almost 100%. Public schools are free of charge, and they are established by municipal boards of education.

After graduating from a junior high school, 95% of students advance to a senior high school (3 years for full-time schools, 4 years for evening high schools, term unspecified for correspondence schools). Most senior high schools are full-time schools, and their types are classified into comprehensive schools, mostly for students who aim to advance to a university, and respective schools for each of industry, commerce, agriculture, fisheries, social welfare, etc., mostly for students who aim to seek employment after graduation; and, 80% of all students go to comprehensive senior high schools. Basically, senior high schools

are coeducational public schools, but there are also private high schools exclusively for boys or girls. For full-time public senior high schools, the tuition fee is about 100,000 yen per year, and these schools are established mainly by prefectural boards of education.

After graduation from a senior high school, students obtain employment or advance to a university (four years normally; six years for medical, dental, or veterinarian schools; term unspecified for correspondence schools). As to universities, the numbers of students of departments of economics and engineering are relatively large. There are also universities that offer night classes, and junior colleges (2 to 3 years) for easier college education, but their numbers of students are small. Coeducational national universities used to be the norm, but in recent years, the number of private universities has become larger. The tuition for the daytime division of a national university is about 500,000 yen per year, and it is established by a special agency called the national university corporation.

In addition, there are also secondary education schools (six years) that combine junior high school and senior high school, and technical colleges that combine senior high school and junior college (5 years), but since each prefecture has only one of each of these schools (approximately), they are exceptional.

Students of senior high schools, universities, and junior colleges can use low-interest loans by the Japan Student Services Organization (an independent administrative agency), and they return money after graduation, over a long time. For students with economic difficulty, tuition can be exempted, and scholarships are also available.

In addition to senior high schools and universities, there are 5,394 schools of various types nationwide (each school freely regulates its study term). There are also innumerable private cram schools.

2.4 Teachers

Teachers of elementary schools, junior high schools, senior high schools, schools for the blind, schools for deaf-mutes, and schools for special-needs children, are fostered at a university (license system).

Only someone possessing a teacher's license can take a public school teacher's employment test conducted by a prefecture. Teacher employment by private schools is up to each school, but every teacher must possess a teacher's license.

The number of full-time teachers for elementary schools, junior high schools, and senior high schools is 930,000, in total. Teachers of public schools are civil servants, and their age limit is 60 years. Their salary is higher by about 5% compared with general civil servants. Salaries of private teachers nearly conform to this level.

2.5 Education contents

The education contents of elementary schools, junior high schools, and senior high schools are regulated according to curriculum guidelines announced by the Ministry of Education, Sports. Culture. Science and Technology. As to the education contents of universities, items regarding qualifications are according to respective standards. and others are according to the discretion of each university.

Subjects of public schools are generally as follows.

Elementary school: Japanese language, arithmetic, natural science. social studies, music, drawing and industrial art. home economics. physical education, ethics.

Junior high school: Japanese language, mathematics, natural science, social studies, foreign language, music, art, technical skill / home economics, health / physical education, ethics.

Senior high school (comprehensive course): Japanese language. mathematics. physics, chemistry, biology, earth science, geography. Japanese history, world history, ethics, politics / economics. foreign language, music, art. calligraphy, home economics, health / physical education, information.

Education of a foreign language starts with English in junior high school.

Only private schools conduct religious education.

3. Characteristics of the education system in Japan

3.1 Homogeneity / equality

The establishment standards for and education contents of elementary schools and junior high schools are the same everywhere in Japan, regardless of regions of establishment, gender of students, etc. They are also the same for private schools, and there is no distinction. except that private schools can implement religious education.

Senior high schools and universities have disparity in education contents and levels, but they are equal system-wise.

Schools for the blind. schools for deaf-mutes. and schools for special-needs children are also compulsory; qualifications are also treated equally.

Educational backgrounds and qualifications are not directly connected, and a national examination must be taken.

A board of education system started in 1947, aiming at American-style control by general citizens, but the system has actually been reduced to a shell. through emphasis on homogeneity.

3.2 Efficiency

Though there are ethnic minorities, actually the only language used is Japanese. There is almost no ethnic education.

Basically, there is a social consciousness that studying hard for schoolwork is good.

The rate of advancement to a senior high school is high, and most students go to comprehensive schools, so general subjects are emphasized at junior high schools.

Because students attend respective senior high schools according to their ability and performance rank, there is little difference in academic ability within respective schools.

As to universities, education contents / levels have not been questioned until recently.

3.3 Range of school education

At elementary schools, junior high schools, and senior high schools, academic subject education and guidance on living, including behavior and attitude, are considered the two wheels of school education.

Club activities are emphasized. Teachers are expected to give instruction as advisers.

Special education activities, such as cultural festivals, sports meets, singing contests, school excursions, and pre-graduation excursions, are considered to be an important field a school should be in charge of.

3.4 Social prestige

The social prestige of a school is considerably high, and also of great social concern.

Accompanying this, the social prestige of a teacher as an occupation is high, and relatively excellent young people aim to be teachers.

4. Problems of education in Japan

4.1 Children

Increase of "nonattendance at school," "bullying," and "delinquency."

Lack of life experience, and poorer interpersonal relations, accompanying the trend toward having fewer children, and urbanization.

Stress called non-stress

4.2 Schools

Enthusiasm toward entrance examinations, aiming at a better school for a better job, is still very high.

Recently trust toward public schools has been shaken, due to the decline in academic achievement and disorder in the classroom.

It is difficult to conduct special education in public schools.

4.3 Society

Social norms are weakening due to excessive emphasis on or deviation from "respect for children's individuality," acceptance of "freelance part-time workers" and "social withdrawal." increase of child prostitution, and others.

Because ideas, such as views toward the nation, toward school. and toward academic ability, are weak. education tends to be discussed only from the viewpoint of immediate efficacy.

Teacher Education in Japan

Shogo KAWAKAMI

Director of Affiliated School (Department of Science)

1. Education system in Japan

Today' s Japan offers a great variety of learning opportunities in many different places and in various forms. Figure 1 shows the education system in Japan.

In the field of school education, there are kindergartens, elementary schools, lower secondary schools, upper secondary schools, universities, specialized training colleges, miscellaneous schools. Elementary Schools and lower secondary schools are compulsory.

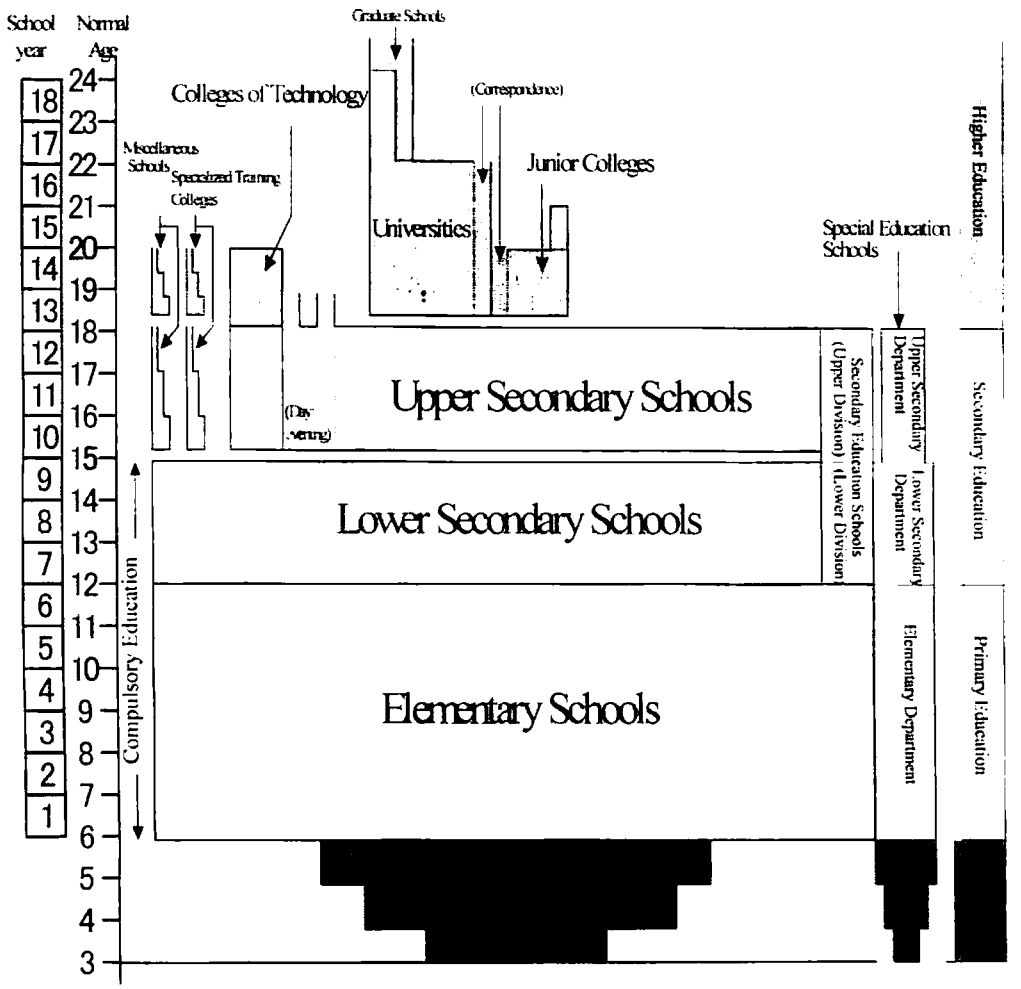

Figure 1 Education system in Japan

At the pre-school level, there are kindergartens and day nurseries. Day nurseries are not shown in this Figure.

At the compulsory education level, elementary and lower secondary schools enroll nearly all the children of the relevant age group (from 6 to 15 years of age) .

At the upper secondary level after compulsory education, there are upper secondary schools, specialized training colleges offering upper secondary courses and so on.

As for higher education institutions, there are universities, graduate schools, junior colleges, colleges of technology, specialized training colleges offering post secondary courses (professional training colleges) and the University of the Air.

The number of students in elementary schools, lower and upper secondary schools is decreasing in proportion to the recently declining birthrate.

In addition to school education, a variety of learning opportunities is provided in the from of social education. Boards of education, citizens' public halls, prefectural governor's offices, municipal mayor's offices, etc. organize classes, lectures, cultural programs and sports programs mainly for adults. Cultural centers and vocational training institutes also provide various adult learning opportunities. Many factors, including the aging of the population the improvement of the level of people's income and an increase in leisure time have brought about changes in today's living environment. Along with these changes, people's aspirations for learning have been heightened. The advancement of science and technology, the development of information oriented society and "internationalization" have also made it imperative to acquire new knowledge and technology. All these developments have made it increasingly important to continue learning throughout life

To meet these aspirations and demands and to positively promote lifelong learning, the government has been developing infrastructures for the promotion of life long learning at national and local levers and vitalizing the educational functions of the home, the school and the community. It thus aims to create a lifelong learning society where people are provided with, in addition to basic school education, opportunities to participate in learning activities at any stage of life, as well as the chance to have their learning achievements adequately evaluated.

2. Schools, Students and Teachers

Table 1 shows the number of schools, teachers and students at each schools level, as of May 2004.

The number of elementary school teachers is 407,598. students per class is 26.5 and students per full-time teacher is 17.5. In Lower secondary schools, teachers are 252.050 students per class are 31.3 and students per full-time teacher is 14.9. There are 258.537 teachers in upper secondary schools.

Table 1 Schools, Students and Teachers (May 1, 2004)

	Schools	Students	Teachers	Female Teachers (%)	Students per class	Students per teacher
Kindergarten	14,174	1,760,494	108,822	*93.1*		
Elementary school	23,633	7,226,910	413,890	*62.3*	*26.5*	*17.5*
Lower secondary school	11,134	3,748,319	252,050	*40.9*	*31.3*	*14.9*
Upper secondary school	5,450	3,809,827	258,537	*27.1*		

3. Teacher Education in Japan

Teacher education of Japan is carried by Pre-service teacher training in universities and In-service teacher training.

3.1 Pre-service teacher training in universities

Table 2 shows that what type of universities and faculties provide what type of certificate. Teacher training in Japan has generally been carried out at the university and college level in accordance with the Educational Personnel Certification Law (promulgated in 1949).

Table 2 Universities and teacher certificate

Type of Universities	Degree	Type of Certificate
Public Colleges. Private Colleges	2 Years	2nd class of Kindergarten, Elementary School, Junior High School
National, Prefectural and Private Universities	Bachelor	1st class of Kindergarten, Elementary School, Junior High School, Senior Hi School
48 National Universities and Faculties for Teacher Education	Bachelor	1st class of Kindergarten, Elementary School, Junior High School, Senior Hi School
Universities providing advanced program in Master' Course (mainly 48 Universities and	Master	Advanced class of Kindergarten, Elementary School, Junior High School, Senior Hig School

Table 3 Universities and the students of teacher training course (2004)

University	Undergraduate	Graduate	University	Undergraduate	Graduate
Total	9845	4018			
Hokkaido U. of Educ.	660	164	Mie U.	100	41
Hirosaki U.	145	42	Shiga U.	140	65
Iwate U.	160	42	Kyoto U. of Educ.	160	70
Miyagi U. of Educ.	160	57	Osaka U. of Educ.	485	221
Akita U.	100	41	Hyogo U. of Educ.	160	300
Yamagata U.	120	39	Nara U. of Educ.	130	60
Fukushima U.	220	47	Wakayama U.	100	45
Ibaraki U.	215	70	Tottori U.	0	42
Utsunomiya U.	150	65	Shimane U.	170	35
Gunma U.	220	39	Okayama U.	200	90
Saitama U.	410	60	Hiroshima U.	495	157
Chiba U.	405	79	Yamaguchi U.	100	41
Tokyo Gakugei U. of E.duc.	590	309	Naruto U. of Educ.	100	300
Yokohama National U.	230	130	Kagawa U.	130	51
Niigata U.	180	37	Ehime U.	120	49
Jouetsu U. of Educ.	160	300	Kochi U.	100	40
Toyama U.	100	38	Fukuoka U. of Educ.	420	100
Kanazawa U.	100	55	Saga U.	90	39
Fukui U.	100	67	Nagasaki U.	180	38
Yamanashi U.	100	42	Kumamoto U.	230	47
Shinshu U.	230	40	Oita U.	100	39
Gifu U.	215	62	Miyazaki U.	100	38
Shizuoka U.	260	72	Kagoshima U.	225	38
Aichi U. of Educ.	480	150	Ryukyu U.	100	35

In addition, national universities and faculties of education aiming mainly at teacher training for elementary and lower secondary schools are established in national universities, those number is 47 at present that is shown in Table 3 (excluding Tottori U.). These universities and faculties are the main position of teacher education of Japan.

Meanwhile, other national, local public or private universities and junior colleges, with the approval of the Minister of Education, Science, Culture and Technology, may also enable those students who have acquired the prescribed number of credits as provided by the Educational Personnel Certification Law, to obtain teacher certificate.

It can safely be said that the existing system of teacher training in Japan is characteristic in three points;

1. It is carried out only in universities or colleges.
2. It is an open system.
3. It is based on certification system.

3.1 In-service teacher training

Many kinds of In-service trainings are carrying out in many kinds of places. Each school has own research project to improve school curriculum or teaching strategies.

Prefectural and Municipal Boards of Education provide In-service training for newly

appointed teachers, 5 years experienced teachers and 10 years experienced teachers. Many kinds of associations and Teacher's Union conduct research meetings. National universities and faculties of education provide training program in master courses for school teachers. Recently, some universities and faculties of education have begun the master course in the evening.

4. Teacher Certification System

Teachers at kindergartens, elementary and secondary schools in Japan must have the relevant teaching certificates as provided for by the Educational Personnel Certification Law and other statuses concerned. Certification requirements vary with school level. Teacher certifications for kindergartens and elementary schools are available for all subjects, while those for lower and upper secondary school are for specified subject areas.

Teacher certificates are divided into regular, temporary and special certificates. Persons who hold regular certificates are qualified for full teaching post. This type of certificates is subdivided into advanced, first and second class certificates.

The basic qualifications for second class certificates for kindergarten, elementary and lower secondary teachers is that they have studied for- two years in a university (or the equivalent) and acquired 37 credits* (**Notes*:1 Credit = (Lecture for 1unit hour (90minutes in my university) + Self-instruction for the same time at home) 15weeks (1 semester).) after graduating from elementary and secondary schools (total for 12 years). The basic qualifications for first class certificates is that they must hold a bachelor's degree and acquired 59 credits, while advanced certificates are granted to those who hold a master's degree or who have studied for one year and acquired 24 credits beyond the bachelor's degree.

5. Report to Improve Teachers' Qualification by Teacher Education Council (1997)

5.1 National Curriculum Standard

The Curriculum Council revised the National Curriculum Standards of kindergarten, elementary school, lower and upper secondary schools and schools for the visually disabled, the hearing impaired and the otherwise disabled in1997. The Council comprehensively discussed how to help children's well-balanced development and how to educate them to be sound members of the nation and the society living independently in the 21st century. The Council proposed the conclusion that the national curriculum standards should be reformed as follows:

1. To help children cultivate rich humanity, sociality and identity as a Japanese living in the

international community

2. To help children develop ability to learn and think independently

3. To help children acquire basic abilities and skills and grow their own individuality with plenty of scope for educational activities

4. To encourage individual schools to show ingenuity in developing unique educational activities to make the school distinctive

5.2 Council of Teacher Education "First Recommendation " in 1997

Improving teachers' qualification is the key to realize the national curriculum standards. Council of Teacher Education announced "First Recommendation to improve teacher training program." in 1997. This recommended to improve three levels, pre-service training program at universities, appointment to teachers by board of education in prefectures, and in-service training at schools. municipals, prefectures, and universities.

Outline of recommendation is 4 heads and 16 items:

Teacher Standards or Objectives

Skills and Qualities required of Teachers

Professional activities of teachers who take direct responsibilities for school education are concerned with the development of human mind and body, and highly impact to the personal development of children. In view of responsibilities of teachers as profession, we have understood that teachers required skills and qualities such as awareness of their calling as educators, deep understandings of human development, educational affection to children, professional knowledge on subjects, broad and pregnant culture, and practical leadership based on these qualities.

Furthermore, in the rapidly changing era of internationalization and information-oriented society, Japanese teachers are expected to be able to cultivate children with a "zest for living" to learn and think by themselves. and to acquire rich senses of humanity. Please see figure 1, which indicates skills and qualities required of teachers for the 21st century.

1. It is dispensable for each teacher to acquire various qualities mentioned above, and obtain minimum required knowledge and skill. However, we know it impractical that we expect all of teachers to be highly cultivated various skills and qualities.

2. In school, teachers should cooperate and coordinate as team to be consisted of human resources with various qualities and rich personalities in order to develop substantial educational activities as its whole organization. It is also very important to promote cooperation and coordination between teachers and other specialists as well as schools, families and local communities in order to response to complex and difficult problems in present schools, such as bullying and refusal to attend schools. In the future, we

need to further promote to develop daily support system by specialists and to ensure cooperation between schools and special institutes.

3. Skills and qualities of each teacher are not fixed and available to change and growth by their experiences. According to their profession, majors, ability and quality, and interesting, it is necessary for teachers to improve their skills and qualities throughout life. As usual, their daily educational practices and profound self-study promote quality improvement as teacher. Teacher training by appointment body is also very important.

4. In this context, it is not suitable to expect uniformed ideal to teachers. On the basis of life-long quality improvement, it is important to ensure fundamental skills and quality for all teachers commonly, and to enhance personal development as well as best fields. We believe that it make schools active and their power of education.

Teacher Preparation

5. There are primary schools, lower secondary schools, upper secondary school, unified lower and upper secondary schools, schools for the blind, schools for the deaf, schools for the otherwise handicapped, and kindergarten in Japan. Teachers of these schools have to obtain teacher certificates respectively, the so-called principle of license.

6. Pre-service teacher training is implemented in universities as usual. To obtain the certificates, students are required, in addition to the basic qualifications such as the completion of a bachelor's degree course, to acquire the prescribed number of credits.

7. Required number of credits for obtaining teacher certificates is depending on the kinds of certificates respectively. For example, students seeking a first class lower secondary school must acquire 20 credits for specialized subjects in courses given at universities and 31 credits for teaching subjects, and 8 credits for specialized subjects or teaching subjects.

8. In 1998, a part of "Educational Personnel Certification Law" was revised It defined that new subject "comprehensive practice" to foster ability to act from the global view was required, and that the subject "how to use information machine" and "foreign language communication" to foster ability to live in changing age. It also defined that "subject on significance of teaching profession" to foster ability to concretely and directly relates of teaching profession was required, that content of counseling was required, and that the length of teaching practice in lower secondary schools was extended.

9. By revising of the "Educational Personnel Certification Law" in 1 998, each university can organize curriculum by themselves under the frameworks, based on the social needs. The new in-service training program will be adapted to the new entrance in April 2000. Thus, under this new training system various reforms will be implemented so that we pay attention to future implementation of each university and expect their results.

Professional Development

10. As teacher appointment body, each prefectural board of education has primary responsibility for implementing in-service teacher training. They have implemented various training according to respective situation. The Ministry of Education, Science, Sport and Culture (MONBUSHO) gives prefectures necessary support and advice on teacher training and holds various workshops for the in-service training of principals, vice-principals and backbones who play the leading role at the prefectural level.

11. In order for teacher to improve such qualities throughout their life, it is necessary for them to devote themselves daily works, to participate in training on issues found by the implementation of their works, and to try to resolve issues. However, in-service training programs in Japan have mainly been provided by educational administration and they have been somewhat obligation as teachers. They are not always in-service training programs coping with voluntary and independent will of each teacher to training.

12. In the future, it is necessary for us to promote in-service training according to each teacher's needs and to develop support system for them. It is essential that in-service training program by actively making use of master course program will be center to promote and support voluntary and independent teacher training. It is expected to produce harmony between educational theories and practices.

13. As to professional training, it is necessary to select the contents of it and to improve measures for training from the viewpoint of introducing participatory training as well as selection system of training contents and measures. In order to enhance training contents, it is necessary to develop curriculum according to its aims by support and cooperation of universities and private companies.

14. Successful strategy or reform in Japan in the area of professional development. As one example, we describe induction training for beginning teachers system enacted in 1989.

1) In Japan, universities play main roles to train students to acquire minimum skills and qualities as teachers. So in-service training is main opportunity to have more practical skills and qualities. Especially, terms of beginning teachers is important so that they are connection between pre-service training in universities and practice in schools. It is conducted for all beginning teachers in national and public schools, for one year after their appointment. Prefectural boards of education have obligation to implement this training. It aims that teachers can be fully aware of their profession as teachers and have aptitudes for developing their independent education activities.

2) This induction training program is spread out over the school year for 2 days per a week or some 60 days which are school based training during which beginning teachers receive instruction from their advising teacher, and 1 day per a week or some 30 days of which are spent attending lectures, seminars and various practical training sessions that include workshops held in education centers of other institutions outside of school.

3) As to this induction training program, beginning teachers have reported its positive results such as

that they could have sense of mission and awareness as teachers, learn how to operate class, manage classroom, and make relationships with children, and have broad range of experiences. It is also pointed out that beginning teachers can remarkably improve their skills and qualities because they participate in this training voluntarily and actively.

Assessing Quality in Teaching

15. We won't say anything formally about assessment of the quality of teaching because there are many issues to be examined carefully. We just say they include issues who should assess quality in teaching but principals as persons in charge of implementation of educational courses in each school, and how should we create objective criteria for assessment in relate with accomplishment of various education goals.

16. We can not grasp any examples concerning successful strategy or reform in the area of assessing quality in teaching.

6. Revision of Educational Personnel Certification Law (1998)

The Educational Personnel Certification Law sets the minimum units of credits to be taken in universities. Many universities provide teacher training program to get certification. Not only teacher training universities and faculties but also literature and science major universities and faculties provide program to get teacher certificate in secondary school levels. It is called "open system for teacher training."

Table 4 shows minimum number of credits required for teacher certificates in education-related subjects and kinds of certificate. New Law requires more practical aspects than theoretical aspect in these subjects: "Significance of teaching" is new subject which students understand teachers and teaching job. "Integrated Study Seminar" is also new subject which students are develop to understand and to perform new area activity, "Integrated study" sets in Elementary through Senior high schools. "Method of teaching subject" in Elementary school consists 9 subjects, Japanese language, Social study, Arithmetic, Science, Life and environment study, Music, Fine arts, Physical education, and Home economics. "Method of teaching subject" in Secondary school level is more emphasized than before. Minimum required number of credits becomes 8 from 4 or 2. As well as. "Student teaching" in lower secondary school level becomes 5 credits from 3 credits. The 5 credits of Student teaching consist of 15 hours seminar for preparation seminar and 4 weeks teaching experience in school.

Table 4 Minimum Number of Credits Required for Teacher Certificates in education related Subjects and Kinds of Certificate.

Content	Certificate Class	Elementary School Teacher		Lower Sec. School Teacher		Upper Sec. School Teacher		Kindergarten Teacher	
		1st class	Advan	1st class	Advan	1st class	Advan	1st class	Advan
Significance of Teaching	Role of Teachers Teacher's Regulations Guidance for Teachers	2	2	2	2	2	2	2	2
Basic Philosophy of Pedagogy	Educational Principles Educational Psychology Educational System and Management	6	6	6	6	6	6	6	6
Curriculum and Methods of Teaching in Subjects	Curriculum Development Methods of Teaching Subjects	18	18	8	8	4	4		
	Moral Education	2	2	2	2	2	2		
	Special Activity Teaching Strategy	2	2	2 2	2 2				
Curriculum and Method in Kindergarten	Curriculum Development Methods of Teaching Subjects Teaching Strategy							18	18
Counseling and Guidance	Guidance Counseling Career Guidance	4	4	4	4	4	4		
Counseling and Guidance	Understanding Infant Counseling							2	2
Integrated Study Seminar		2	2	2	2	2	2	2	2
Student Teaching		5	5	5	5	3	3	5	5

7. Teacher Training Program in Aichi University of Education (revised 2000)

7.1 Undergraduate School Program for both Elementary and Secondary First Class Certificate

Table 5 shows minimum number of requirement credits to graduate for 4 teacher training courses.

I will here explain the case of elementary school teacher course.

Teacher Training program must be organized in accordance with the Educational Personnel Certification Law and the Regulation for the Establishment of University Standards. That is to say, students must be in university for more than four years and obtain at least 124 credits which consist of the following courses: "Liberal Arts", "Foreign Language" (in most universities. the completion of more than two courses in a foreign language is among the requirements for graduation); "Health and Physical Education"

which contains lectures and sports activity. The minimum number of credits in each course can independently be decided by universities. In Aichi University of Education, "Computer Literacy" is a required subject. All students should buy personal computer at the time of admission.

Subject Studies (13 credits) are aiming to deepen understanding about the subjects of elementary school. School Subjects (14 credits) is the study of major subject of the student.

In case of student majoring in science, they learn about science. The student of secondary school course should study 20 credits more. Teaching Methodology (18 credits) is the methodology of 9 subjects of elementary school. Studies of Pedagogy (20 credits) is Significance of Teaching (2 credits), Basic Philosophy of Pedagogy (6), Curriculum and Methods of Teaching in Subjects (6), Counselling and Guidance(4) and Integrated Study Seminar (2) (See Table 4, too). Integrated study seminar was newly set up to promote "Integrated study (newly set up in 3- 12 graders)" which emphasize on hands-on based activity. (*Note*:Integrated study in elementary and secondary schools is not subject as science or mathematics, school teachers have developed them in their ways which coordinate with school, community and student activities. Therefore, Integrated study seminar should develop students' skill to study materials by concrete case-studies and skill to teach them.) Student teaching is required 5 credits in 3rd year (junior). Three additional student-teachings are set up in 1st (freshman) and 4th(senior) years. Basic student-teaching at attached schools is set up for 1st year students to observe classroom activity and to foster their mind towards teaching profession. Adjoined-school student-teaching is set up for 4th year students to have teaching experience at another school which they already have done. Advanced student-teaching also set up for 4th year students to develop more practical teaching skill and professional development.

Graduation Thesis Research is very important. Student research his/her thesis for one year. Total number of credits is 128 credits.

Actually, students in elementary and secondary teachers mostly obtain both elementary and secondary teacher certificates, therefore, both elementary and secondary school teacher courses students will get credits more than minimum requirement. Students of elementary school teacher course are qualifies as secondary school teacher course students. They mostly get credits in "Curriculum and teaching methodology (8 credits for secondary school subjects) " as well as "school subjects" for secondary level which emphasis more advanced content in each subject.

Table 5. Minimum Number of Requirement Credits to Graduate for 4 Teacher Training Courses

Categories of \ Teacher Training Courses		Elementary School	Early Childhood Education	Secondary School	Special Education School	School Nursing and Health Education
Liberal Arts	Basic subject	8				
	Theme subjects	8				
Computer Literacy		2				
Foreign Language	Communication	2				
	Elective (2)	6				
Health and physical education		3				
Introductory Studies		2	2	2	2	2
Theme Studies		2	2	2	2	2
Subject Studies (Elementary)	Compulsory	10	6	2	10	
	Elective	3				
School Subjects	Compulsory			20		
	Elective	14		14		
Early Childhood Education			24			
Special Education for the					24	
School Health Education						44
Teaching Methodology (Elem.)		18			18	
Curriculum and Teaching Methodology (Secondary)				8		
Teaching Methodology for Early Childhood Education			10			
Studies of Pedagogy		20	21	20	20	20
Student-Teaching		5	5	5	5	5
Elective Subjects		19	23	20	12	20
Graduation Thesis Research		6	6	6	6	6
Total		128	128	128	128	128

On the other hand. minimum number of requirement credits of school subjects for secondary level was decreased 20 from 40 credits in the Educational Personnel Certification Law (1997). The Law emphasized education-related subjects more than teaching content(major) studies. However, many teacher training programs in universities keep emphasis on major content which differs from content in secondary school subjects. About 60-70% teaching staff of teacher training universities want to emphasize on and teach content-related subjects which professors have studied at literature/science major collages (faculties). In department of science education which has 37 science major professors and 4 science educators, provides following major subjects studies for secondary school level:

- Required 20 credits in science major subjects (number of credits)

Basic Physics I & II(3), Physic laboratory(1), Material study in secondary physics(1)

Biology I & II (3), Biology laboratory(1), Material study in secondary physics(1)

Chemistry I & II (3), Chemistry laboratory(1), Material study in secondary chemistry(1)

Earth science I & II (3), Earth science laboratory(1), Material study in secondary earth science (1)

- Elective more than 14 credits in science major subjects from one discipline

[Biology] Generation biology, Morphology, Plant inheritance study, Plant physiology, Various biology, Basic ecology, Cell biology, Molecular biology, Generation biology experiments, Morphology experiments, Plant inheritance experiments, Plant physiology experiments, Physiology chemistry experiment, Molecular inheritance experiment, Plant and animal ecology experiments, Cell biology experiments, Molecular biology experiments and Biology education teaching material experiments

[Chemistry] Physical chemistry, Inorganic chemistry, Analytical chemistry, Organic chemistry, Biochemistry, Physical chemistry experiments, Inorganic chemistry experiments, Analytical chemistry experiments, Organic chemistry experiments, Biochemistry experiments, Field work in chemistry, Chemistry teaching material experiments

[Earth Science] The solid earth science, Atmosphere and hydrosphere science, Space science, Natural history, Solid earth science experiments, Atmosphere and hydrosphere science experiments, Space science experiments, Natural history experiments, and Field works

[Physics] Mechanics, Electromagnetism study, Quantum physics, Statistics mechanics, Physical properties science, Radiation study, and Physics teaching material experiments, Physics experiments, and Electronics experiments

[Environment Education] Introduction in Environment Education, Natural Environment, History in science and development, Environment geology, Ethics in Environment, Environment and law, Environment Policies, History and Environment, Sociology and Environment, Environmental assessment study, Field work education

Graduation thesis research is required for graduation, students can select their field to research in 4th grades. Thirty-seven professors whose major are science want students to train in special research areas, 4 professors of science education want students to foster students' abilities in education-related areas as graduation thesis research. Most of students want to get teaching job after graduation. Actually, about 50% of students get many kinds of jobs except for teacher.

7.2 Graduate School Program for Advanced Class Teacher Certificate

Ministry of Education, sports, culture, science and technology promote recurrent teacher training in graduate school as in-service training for teachers in school. Advanced class teacher certificate can be taken by obtain more than 24 credits in graduate schools based on

1st class certificate. All of national universities or faculties provide advanced class teacher certificate program for teachers. The Educational Personnel Certification Law (1997) sets up minimum required number of credits to get it. Content and method for advanced class certificates are not defined in the Law as 1st class certificate.

Aichi University of Education provides advanced class certificate with master degree. It has thirteen departments in graduate course: Educational science. Subject Education Study course (Language education, English Education. Social study education. Education for disabled, Mathematics education, Science education. Art and Music education, Physical and health education. Home economic education. Engineering education). School nursing and health education, and Clinical research on school education. Enrollment capacity is totally 150 in one year. Classes are held both day-time and night-time/week-end. About one-forth of graduate students are teachers come from school.

Student is required to get more than 30 credits for graduation. Subject education study course has two courses, Subject education course and Subject content course. Minimum required number of credits shows Table 6. Subject education course students are required educational research in subject education. Subject content course students are required subject major research as master degree thesis research.

Table 6 Minimum Required Number of Credits in Subject Education Study course, Graduate school

Course / Required Subjects		Subject Education Study Course	
		Subject Education Major	Subject Content Major
Educational Science	Pedagogy	4	4
	Psychology		
	Integrated education	2	2
Subject Education		10	6
Content Education		4	8
Research seminar		4	4
Elective subjects		6	6
Total		30	30

Science education subjects in graduate school has lectures and seminars as followings; Science curriculum theory, History of science education, Special seminar in science education, Methodology of science education I and II, Special seminar in method of science education, Practical research in science class activity I and II, Special seminar in practical research. Research on teaching materials I and II. Analysis of science class I, II, III, and IV, Special lecture on Science Education, I, II, III. Special seminar on science education research

Science content subjects in graduate school are more advanced and detailed content on science major subjects as followings;

Basic physics, Electromagnetism, High-energy physics, Elementary particle physics, X-ray and cryptology, Solid physics, Physical properties science, Statistics mechanics, Low temperature physics, Condensed matter physics, Applied Physical properties science, Astrophysics

Basic chemistry, Inorganic Chemistry, Geochemistry, Analytical chemistry, Organic synthesis chemistry, Reaction chemistry of organic compounds, Biochemistry

Generation biology, Morphology, Plant inheritance study, Plant physiology, Variety of livings, Basic ecology, Cell biology, Molecular biology, Applied biology, Plant taxonomy

Astrophysics, Atmosphere and hydrosphere science, Space science, Natural history, Solid earth science, Structural geology, Hydrogeology, Mineralogy, Paleontology

Acknowledgement

I express my great thanks to Atsushi Yoshida, Professor of Aichi University of Education, for his useful and kind support to prepare this paper.

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Instructional Processes in Japan

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1. Firstly, this lecture will be explaining the instructional processes in Japan from the viewpoint of educational psychology (or cognitive psychology). Next, it will explain that the lessons provided at elementary and secondary schools consist of the two elements of "goals of instruction" and "instructional processes." It will explain that the two psychological fields related to educational psychology, namely behaviorism psychology and cognitive psychology, comprise the theoretical bases that define the diverse characteristics that constitute the two elements.

2. Explanation of "goals of instruction." Basically, lessons in Japan aim to achieve the goals in the three domains below, to foster children who have balanced abilities. etc.. in those domains. These are (1) cognitive domain (knowledge and understanding. thinking and judgment), (2) affective domain and (3) (psycho-) motor domain (motor skills and expression).

3. Explanation of "instructional processes." Basically, the lessons in Japan are provided by establishing the following four main instructional environments in order to achieve the above-mentioned goals of instruction. They thus aim to foster children's "zest for living." The four instructional environments are (1) Learner-centered Learning Environment (LE): ATI (Aptitude-treatment Interaction). etc., (2) Knowledge-centered LE: environment for educational guidance aiming at deeper understanding and transfer (application of what one has learned to daily life), (3) Assessment-centered LE: environment for the formative assessment aiming at deeper understanding of the contents of education, and (4) Community-centered LE: environment to support learning consisting not only of the relationship between teachers and children, but that among children, as well as the school environment including but not limited to teachers and children. and the local community.

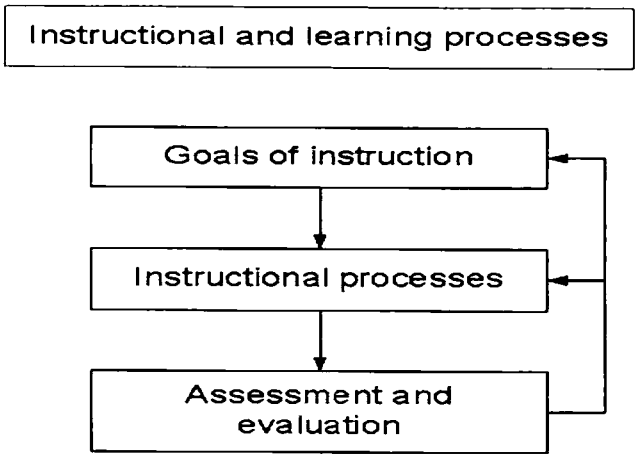


Table 1.1 Characteristics of the Three Approaches for the Understanding of the Instructional Processes

Item	Behaviorism psychological approach	Cognitive psychological approach	
		Information processing	Situated cognition
Acquisition of knowledge	Association of stimulus and response based on experience	Formation of mental structures and processes	Practical-minded participation in the community
Curriculum	Goal: strengthening of association	Goal: conceptual understanding and development of general abilities	Goal: practical-minded participation
Motivation	Extrinsic motivation	Intrinsic motivation	Devoted participation
Teacher's roles	Trainer	Guide	Guide
Roles of children	Absorbers of information	Constructor of knowledge	Constructor of knowledge
Roles of peers	Not taken into account	Not so important	Important

◎ **Classification of Educational Goals**

- Cognitive domain: Acquisition and use of knowledge

  Knowledge and understanding

  Thinking, judgment, expression

- Affective domain: Acquisition of motivation and values

  Interests, eagerness, attitude

- Psycho-motor domain: Psycho-motor learning

  Skills, expression

◎ **Lessons to Support Construction of Knowledge**

- "Construction of knowledge" To actively integrate knowledge while learning
- Internal structuring: restructuring
- External structuring: Ex: drawing segment charts, solving problems, asking questions, summarizing

◎ **Learner-centered Environment**

Knowledge, attitude and beliefs that learners bring into the classroom

- Education "in compliance with culture"
- Diagnostic educational guidance

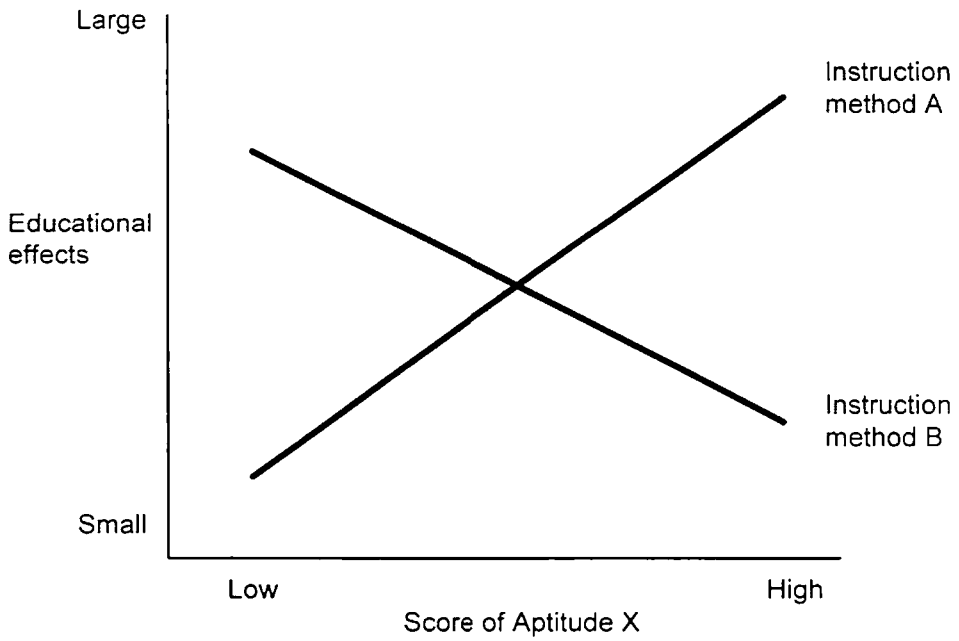


Figure 1.2 Schematic Diagram of ATI (Aptitude-treatment Interaction)

◎ **Knowledge-centered Environment:**

Declarative knowledge

Procedural knowledge

- Learning based on understanding
- Learning that promotes transfer

◎ **Categories of Long-term Memory (LTM)**

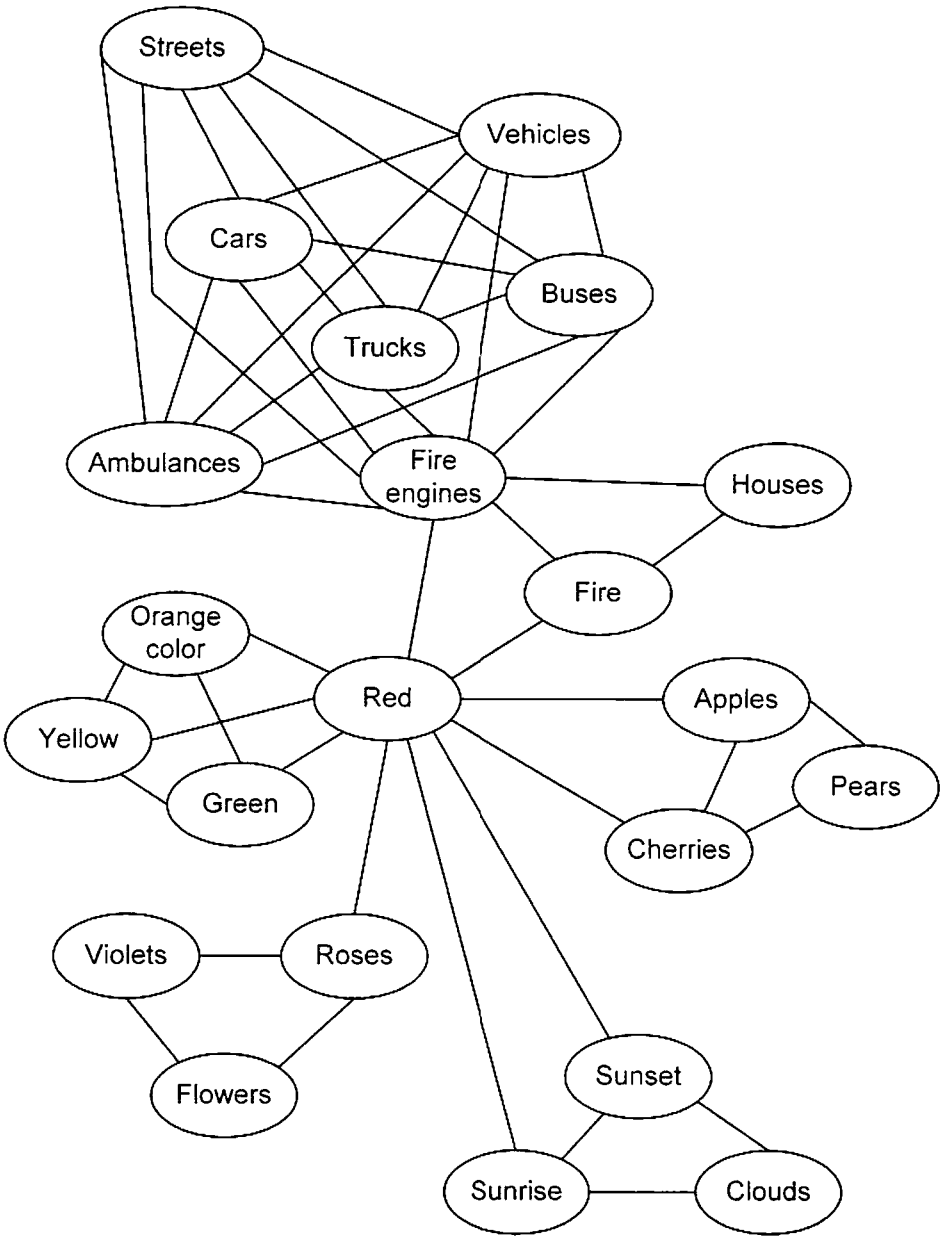
• Memory of declarative (conceptual) knowledge

1) Episodic memory: events

2) Smantic memory: facts and concepts

• Memory of declarative (conceptual) knowledge

3) Procedural memory: skills, knowing how



Figere 3.1 Semantic Network of "Fire Engines"
(Collins & Loftus, 1975)

Topics Three Types of the Knowledge Acquisition Process

Norman (1982) clarifies the process of acquisition of knowledge by categorizing learning into three types namely accretion of knowledge, restructuring of knowledge and tuning of knowledge.

1) Learning through accretion of knowledge: To add new knowledge to the (learner's) existing knowledge structure.
2) Learning through restructuring of knowledge: For the learner to form a new schema, for the inability to cope with the existing schema.
3) Learning through tuning of knowledge: To appropriately regulate knowledge for application to a specific learning activity. Can be said as a method of learning that characterizes experts.

Of these three types. Figs. 2-7-[A] and [B] show the learning process through accretion of knowledge. Fig. 2-7-[A] shows the state where small units of new knowledge are about to be added to the existing knowledge structure. When the learning process through accretion of knowledge completes, the new structure becomes connected with the old structure. resulting in something like Fig. 2-7-[B].

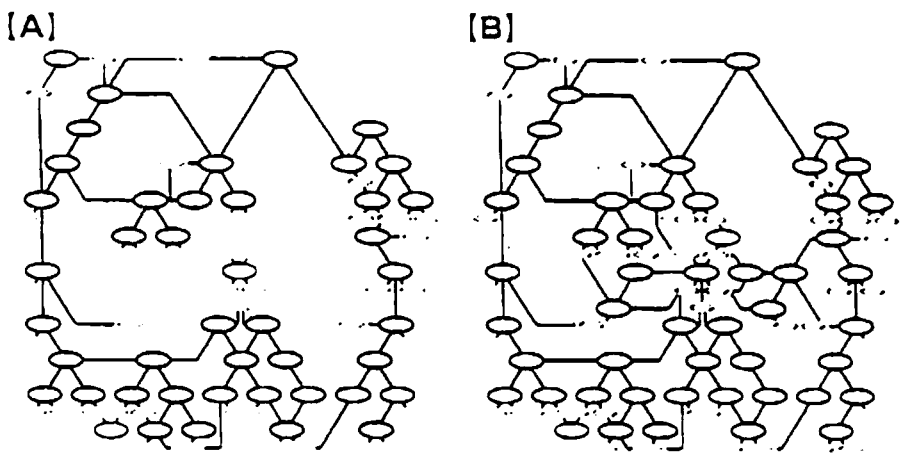


Figure 2.7 Process of Learning through Accretion of Knowledge

" ⬭" shows concepts, and "< >" shows the attribute(s) that that concept has.

◎ **Assessment-centered Environment:**

To provide feedbacks and opportunities to correct.

⇒ In compliance with goals of learning

- Formative assessment
- Summative assessment

◎ **Community-centered Environment:**

Connection with the classrooms, schools, homes, the community, the state and the world

◎ **Collaborative Learning Environment**

- Shared goals

  × "Only I need to understand"

  ○ Project-type learning

- Each individual to have his/her own ideas

  Ex: "Jigsaw learning"

- Externalization and sharing of problem-solving means

  Make visible what others are doing

- Integrated understanding of the diverse outcomes

Evaluation on Japanese Education

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1. The Present Education System in Japan

1.1 First, an outline of the Japanese education system is introduced.

The Japanese school education system is explained (Data A, figure in lower column). Today's education system consists of six years for elementary school, three years for lower secondary school, three years for upper secondary school, and four years for a university, in general. Elementary and lower secondary school education is compulsory. Recently, six-year secondary schools, combining lower secondary and upper secondary schools, have been established. The number of secondary schools is small, at about one per prefecture. In Aichi prefecture, however, Toyota Motor Corporation, JR Tokai, and other companies are planning to establish six-year secondary schools.

University education is four years, but medical universities, such as medical schools, have six-year programs, and also, in science and engineering departments, many students go on to graduate school.

Pharmacy departments are also planning to shift from four to six years.

As such, national universities have been classified as those having graduate school curricula, with the graduate schools being the main university focus, and universities that are centered on their undergraduate schools.

Incidentally, all national universities have become independent administrative institutions in April 2004, making Japan and the U.S. the only countries in the world with no national universities.

Some universities with small numbers of students and weak management foundations, such as junior colleges, have shifted to a four-year system, due to the rapid decline in the number of 18-years-old, and some junior colleges have recently had to close down or declare bankruptcy.

1.2 The rapid increase of university students, and the rapid decline in the number of 18-years-old

The number of university students, as of May 2002, was 2,786,078, and the rate of advancement to universities, in the total student population, was 39.9% (Data A, upper column). After 1945 (World War II), the number rapidly increased until 1980; then it

remained stable until around 1985, after which it rapidly increased again, till today. Entrance examinations for universities used to be aimed at selecting the most elite students, but 40% of the student population now attends a university, and as a result, entrance examinations have had to diversify.

1.3 Qualifications to take entrance examinations for universities

· Graduation from upper secondary school

Even someone who has not graduated from upper secondary school can take a university entrance examination. For example, even students not attending school (30 or more days a year) can take a university entrance examination.

· To take a certification test to be qualified to take a university entrance examination.

· To take a university's original examination.

1.4 Rate of advancing to upper secondary school

The rate of advancing to a university seems to be stable at 40%, but the rate of advancing to upper secondary school is 95%, showing that almost all students attend upper secondary school (Data B, left, upper column). As to upper secondary school entrance examinations, there is great disparity among schools, from upper secondary schools that attract students with high academic ability (so-called schools for students planning to attend a university), to upper secondary schools for students with low academic ability (schools with problematic class proceeding). Because advancing to a school for students planning to attend a university is highly advantageous for advancing to a university, upper secondary school entrance examinations are extremely demanding. Regarding this severity, measures to avoid harsh advancement competition are being sought, under the catchphrase "Don't Make Spring at Age 15 Sad." One attempt is the establishment of secondary schools.

1.5 Upper secondary school entrance examination system

· If a decision should be made based on an academic ability test, or on grades of the three years during lower secondary school (school report).

· Entrance examination based on recommendation

1.6 The school evaluation method was changed from comparative evaluation (norm-referenced) to absolute evaluation (criterion-referenced).

· School evaluation was changed from so-called "five-level comparative evaluation" to "five-level absolute evaluation," in April 2002. Accordingly, evaluation standards were established by respective schools, and upper secondary schools eliminated use of common standards (school reports). This at first led to confusion at respective prefectural upper secondary schools, but the confusion will calm down after a while.

· Explanation on the five-level comparative evaluation

Each lower secondary school gives students points based on grades using a five-level evaluation.

5: in the top 10%.

4: in the 20% following the top 10%.

3: in the middle 40%.

2: in the 20% following the middle 40%.

1: in the lowest 10%.

Because there are nine subjects. the highest point total is 45 points. and the lowest is 9 points. Students who take upper secondary school examinations are sorted out in advance, according to points. As a result. the three years of lower secondary school are used to study for entering upper secondary school, thus making the original lower secondary school education difficult. As such, under the catchphrase "Don't Make Spring at Age 15 Sad," the possibility of a system by which every student will enter a upper secondary school. etc., is being studied.

· Explanation on the five-level absolute evaluation

Points based on comparison with the achievement goals established by respective lower secondary schools.

5: If 80% or more is achieved. compared with the goal.

4: If 60% or more is achieved.

3: If 40% or more is achieved.

2: If 20% or more is achieved.

1: Below 2.

Upper secondary schools assert that this five-level evaluation on achievement, compared with achievement goals established by respective lower secondary schools, is not reliable, because the lower a lower secondary school's level is, the higher the points are.

1.7 Criticism against educational reform: Ronald Dore (Asahi Shimbun, serial symposium; Education at a Turning Point Series No. 1, What Will Be Changed in Education?)

· Keynote lecture

After the War. Japan repeatedly conducted educational reform, mainly based on equalitarianism; in other words, seeking to offer equal opportunity. However. reform to pursue equality often caused unexpected results.

One example is the upper secondary school entrance examination. In lower secondary

school, students are not handled according to abilities. but because they will be differentiated by entrance examinations for upper secondary school. they prepare for entrance examinations from the second or third year of lower secondary school. As a result, the schools have become places where students study for entrance examinations. instead of places where student character is built.

In response to such criticism. the Tokyo Metropolitan Government introduced a school grouping system, but children from somewhat financially well-off families have all come to attend private schools.

1.8 University entrance examination system

1) Examinations of the National Center for University Entrance Examinations (http://ww.dnc.ac.jp)

· Subjects for entrance examinations / courses

- Japanese Language: Japanese Language / Japanese Language, Japanese Language
- Geography and History: World History A / World History B / Japanese History A / Japanese History B / Geography A / Geography B
- Civics: Modern Society / Ethics / Politics, Economics
- Mathematics:Mathematics / Mathematics, Mathematics A
- Mathematics:Mathematics / Mathematics. Mathematics B

Industrial Mathematics / Bookkeeping / Information-related Basics

- Natural Science: General Science / Physics A / Physics B / Biology A / Biology B
- Natural Science A: Chemistry A / Chemistry B / Earth Science A / Earth Science B
- Foreign Language:English

Germany / French / Chinese / Korean

* Students who take examinations for a national university must take this examination. Private universities that impose this examination have also been rapidly increasing. Five subjects / 7 courses at most.

* This examination is conducted annually throughout Japan on the 3rd Saturday and Sunday in January.

2) Individual secondary examinations by respective universities: first-term examination (February 24 and 25)

(a) Required subjects / courses vary depending on universities, faculties, and departments. 3 courses at most, 1 course at least

3) Individual secondary examinations by respective universities: second-term examination (March 12)

(a) Conditions are completely different among universities, such as some universities

requiring only an interview, or an examination in one course, in order to secure sufficient student numbers.

- This examination is completely different from the Scholastic Aptitude Test (SAT) in the U.S.. in nature. Japanese examination is to evaluate academic abilities, not aptitude.