

Education Reform and Fostering Creativity in Japan

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1. Introduction

Japan have learned a lot of things from European and American World since Meiji Era (it begins at 1867). These were science, technology, medicine, politics, democracy, ideas, etc. After World War 2, Japan imported mainly these things from the US. Main purpose of education was to teach these things to students. To attain the purpose, Ministry of Education made "Guidelines to Learning". Based on the guidelines, textbooks of all subjects were edited, and "Manual Books for Teacher" were published by several companies. The main role of teacher was to teach precisely and efficiently the contents of textbook to the students, referencing the Manual Books.

Under such a situation, the students learned faithfully the textbooks. The students who memorize and understand the textbooks got higher grades. Fostering creativity was not so important goal in ordinary public schools, excepting some private schools and attached schools of Faculty of Education. However, a lot of problems, that involve environmental, social, informational, educational, humanistic, moral problems, were occurred when the society of Japan was matured and the differences between Japan and European/American countries were shrunk too much. In some small areas or regions, for example, science and technology, it is decreasing the models to learn from these countries. Japan has to make new models. It requires "Creativity" in Japan's Education.

In order to solve the problems, a new national curriculum was introduced in all of Japan's public education at the beginning of April 2002. It includes "Period of Integrated Study" that has no textbook, no guidelines. Teachers have to make original curriculums that fit to each student.

2. Purposes of national curriculum standards reform (From Ministry of Education HP)

(1) To help a child cultivate rich humanity, sociality and identity as a Japanese living in the international community

A child will be encouraged to cultivate well-balanced rich humanity and sociality, and to develop health and physical strength to lead vigorous life. Rich humanity includes sympathy, mind to respect each other and live together in harmony, respect for life and human rights, sensibility of appreciating beauty, volunteer spirit and the like.

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(2) To help children develop ability to learn and think independently

There was a tendency for school education to emphasize volume of knowledge. Now however, the school education looks itself from the children's standpoint and places a high value on the development of children's intellectual interests and inquiring minds. It also emphasizes the importance of motivating children to learn and helping them develop abilities to learn, to reason, to judge, to express, to discover and to solve problems, to create and to cope with social changes independently. Besides, to aim at children's successful self-realization, it is indispensable to relate knowledge with actual life. This requires the promotion of the hands-on learning and problem-solving approaches.

(3) To help a child acquire basic abilities and skills and grow one's own individuality by allowing ample scope for educational activities to develop.

The common contents of compulsory education will be closely examined and they will consist of the very basics necessary for the social life. By developing educational activities without pressure of time or stress, schools will effectively help a child acquire the selected contents thoroughly and grow one's own individuality. For this purpose, by considering children's interests, schools need to promote children's independent learning and to further develop individualized instruction.

(4) To encourage each school to show ingenuity in developing distinctive educational activities

The national curriculum standards will be generalized and more flexible so that each school will be able to show ingenuity in developing distinctive educational activities by making its own timetable and curriculum in accordance with the actual situations of each community, school and children.

(5) To encourage moral development

In accordance with the actual situations of each community, school and children, each school will be encouraged to develop its distinctive approach suitable to each stage of child development. The hands-on learning approach and practical activities are highly recommended to be used in order to show children what they have learned actually works in daily life. Particularly, **volunteer activities**¹ will be promoted further because of its positive educational impact.

3. Response to internationalization

Children will be inspired to be proud of and to feel love of Japanese history, culture and tradition as well as to deepen their understanding of those. At the same time, they will be encouraged to appreciate different cultures open-mindedly and to develop capabilities of

¹ Many high schools build volunteer activities into their curriculums.

English and abilities to live in harmony with people with different cultures and customs. Elementary school will be expected to provide hands-on learning activities to expose children to foreign language.

4. Response to the information-oriented society

Consistent and systematic information education through every stage of school education will require positive use of computers in virtually every subject. Elementary school will employ computers for children's learning activities in the "Period of Integrated Study" (tentative name).

5. Response to environmental issues

Children will deepen their understanding of the environment and energy issues and will develop respect for the environment. They will be encouraged to develop practical minds and abilities to voluntarily take actions to preserve the environment and make it better.

6. Response to the aging society

Children will deepen their understanding of the aging society and will develop practical minds to voluntarily take actions for the elderly.

7. "Period of Integrated Study"

The newly established "Period of Integrated Study" (tentative name) will encourage each school to show ingenuity in conducting interdisciplinary and comprehensive courses such as international understanding/ foreign language conversation, information education, environmental education and welfare education in accordance with the actual situations of each community and school.

The objectives of the "Period of Integrated Study" are as follows.

- (1) It aims at helping a child develop capability and ability to discover and to properly solve problems by oneself. It also aims at developing child's mind to voluntarily cope with problem-solving activities and/or inquiring activities depending upon one's own interest. Additionally, it emphasizes that a child needs to learn thinking process and reasoning, including the way of getting information, examining, summarizing, reporting and debating.
- (2) It emphasizes to employ the hands-on learning and the problem-solving approaches as in experiential activities in nature and social activities like volunteer activities, experimentation/ observation, inquiring, creative activities and other productive activities.
- (3) In elementary and secondary schools, it is defined as educational activities other than

formal subjects and it will be established for third graders and older of elementary school. It will also be a requirement in upper secondary school and a discussion will be given on this matter.

(4) 2-3 credit hours per week. / 3rd grade in elementary to 3rd grade in senior-high school

8. Psychological goals of the new national curriculum

(1) Cultivating "zest for living" amid "room to grow")

"Zest for living" is the ability to identify problems for oneself, learn for oneself, think for oneself, make independent judgments and actions and solve problems well; these are its important pillars, and in order to cultivate "zest for living", we would like to point out the indispensable aim of further advancing a way of thinking that respects individuality.

Amid "room to grow", in schools, families and the community, children accumulate various rich experiences such as various living experiences and experiences of nature, social experiences and volunteer experiences, etc., as well as having exchanges with various people. Children use these sorts of actual experiences and exchanges with people as learning material, and through a process of trial and error, discover their interests in a process that must be referred to as the budding of individuality. Through this process they bring to life the knowledge they have gained from books, and acquire "zest for living", which includes learning for oneself, thinking for oneself, etc., and have cultivated in them a rich sense of humanity.

9. Translate "Zest for Living" to well-known psychological terms (Yumino, 2001)

As the concept of "Zest of Living" is very ambiguous, Yumino (2001) translated the concept to well-known psychological terms. These are:

- (1) Deeper understanding and multiple thinking ability (Gardner, H.)**
- (2) Creativity**
- (3) Curiosity**
- (4) Presentation Ability**
- (5) Self-Efficacy**
- (6) Leadership and Follower ship**
- (7) Abilities and Attitudes in harmony with Environment**
- (8) Abilities and Attitudes to cope with Information Society**
- (9) Skills and Knowledge for International Understanding**

A book written by Yumino (2001) includes following contents:

Achievements in Integrated Study
How to foster creativity in the classroom?

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Chapter 1. Psychology of Intelligence and Creativity

1. What is Intelligence?
2. Structure of Intelligence.
3. Measuring Intelligence.
4. Intelligence and Academic Achievements.
5. What is Creativity?
6. Structure of Creativity.
7. Measuring Creativity.
8. Intelligence and Creativity
9. Development of Intelligence and Creativity.
10. Many Factors that affect on Development of Creativity.

Chapter 2. Academic Achievements of Japanese Children.

1. International Comparison of Academic Achievements.
2. Mathematical Achievements in Japanese Students.
3. Scientific Achievements in Japanese Junior-High Students.
4. Why Singapore is Number One in Math and Science, and Students Attitudes to them?
5. Comparative Studies in Creativity and Sensibility.

Chapter 3. Zest for Living and Creative Power.

1. What is Zest for Living?
2. Why do we need it now?
3. Learning and Creation in highly developed Informational zed and Internationalized Society.
4. What kinds of Psychological Concepts are related to the Zest for Living?
5. A Theory of Development in Creativity and Education.
6. Students' Experiences and Creativity.

Chapter 4. Measuring and Fostering Zest for Living.

1. Viewpoints of Measuring and Evaluating Zest for Living.
2. Psychological Measurement and Evaluation for Zest for Living.
3. Fostering Zest for Living in Saijo Primary School.
4. Fostering Curiosity and Creativity.
5. Teaching Example for Fostering Creative.

Chapter 5. Enlarging Thinking and Creative Ability.

1. Can "Space of Thinking" be enlarged?
2. Is the Free Thinking Condition refined the Quality of Invention?
3. A variety of Techniques that promote Thinking and Creating Ability.
 1. Make Cognitive Dissonant Situations.
 2. Use Discovery Learning (by Bruner).
 3. Hypothesis-Experiment Lesson (by Itakura).
 4. Use Concept Mapping (Novak, Cornell Univ.).
 5. Use Vee Heuristic (by Gowin, Cornell Univ.).
 6. Repeat Debate to some Topics.
 7. Think by Brain Storming.
 8. Use KJ (Kawakita Jiro) Method.
 9. Use NM Method.
 10. Prepare the Questions that solicit Students' Creative Thinking (by Torrance).
 11. Ask Students to express Own Ideas to Third Party.
 12. Improve the Words of Admiration that directly close to Creativity.
 13. Utilize Walls and Board of the Classroom.

Chapter 6. Developments of Concept Mapping.

1. What is Cognitive Structure?
2. The Roles of Cognitive Structure that play on the Learning.
3. Cognitive Structure and Concept Mapping.
4. Fostering Creativity using by Concept Mapping.
5. Introduction to Concept Mapping.
6. New Approaches to Teaching Lesson using by Concept Mapping.
7. Evaluation of Concept Maps.

Chapter 7. Development and Evaluation of Integrated Study.

1. Goals of Integrated Study.
2. Environmental Education.
3. International Understanding Education.
4. Information Education.
5. Social Welfare Education.
6. The Learning to the Local Area & City.
7. Portfolio Learning and its Evaluation.

Chapter 8. Enlarging Questioning Abilities and Curiosity using by Internet.

1. Internet.
2. Internet and Education.
3. The Merits of Using Internet.

4. **Acquiring Information from Internet.**
 5. **Broadcasting Information to Internet.**
 6. **Enlightening Creation using by Internet.**
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10. Fostering Creativity in Schools

(1) Primary and secondary school level

All of Japan's schools have introduced "Period of Integrated Study" that mainly aims at fostering "zest for living" from this spring. In the time, students are having many kinds of "experience". National Institute for Educational Policy Research differentiated them into 26 experiences. These are follows:

1. Experiences of making things.
2. Experiences of breeding animals and cultivating plants.
3. Observational experiences to animals and plants.
4. Experiences of social facilities (club, camping site, etc).
5. Experiences of interactive education (international, handicapped, school of other region, etc).
6. Activities of considering human rights and meanings of peace.
7. Researching activities about the local nature
8. Exploring activities for local region history and traditional culture.
9. Researching activities about the local society
10. Activities concerning the local unique business and industry.
11. Exploring activities for local domestic livings, i.e.; wearing, eating and dwelling.
12. Experiences that inquire now day's problems and solve them trial and error.
13. Creating some play and enjoy it in real situation.
14. Real experiences through volunteer/social welfare activities.
15. Exchanging own opinions among various people through a variety of topics.
16. Activities that maintain environment.
17. Utilize many kinds of information devices & media.
18. Astronomical and meteorological (weather conditions) observation.
19. Playing music and drama.
20. Activities that maintain health, and physical education.
21. Experiences to enroll activities in local society.
22. Field life.
23. Interactive activities to foreign people.
24. Exploring foreign culture.
25. Actual job experiences that aim at realizing own way of life.
26. Experiences that grip the meanings of life and death.

Through above experiences, some schools aim at fostering creativity. However, the number of such schools is very restricted.

(2) Senior- High school level

26 high schools in all of Japan were chosen as “Super Science High School” in 2002. Students in the schools learn higher and progressed curriculums that are included in to foster creativity in science and mathematics.

(3) Undergraduate & graduate level

There are many courses that aim at fostering creativity in the curriculum. Especially, engineering, information, business, and education. Unfortunately, the スイハニ refined program that guarantees developing creativity is very limited.

Yumino (2001) introduced a creativity-developing program in graduate course of teacher training like below.

Psychology of Creation (2001)

By Kenichi YUMINO

For Master Course: In-Service and Pre-Service Teachers.

1-Year, 4 Credits:

Participants: 30 students.

Spring Semester:(15 times)

5-Groups.

After read my books (Yumino, 2001) and papers, each group summarize them concerning some topics, adding in-service teachers’ real practices.

Discussion.

Autumn Semester:(15 times)

In Autumn –Term, Students were divided into 5 groups. Each group conducted 2 Lessons, in making Lesson Plan.

Professor prepared books, papers, references, etc. , and only commented the Lesson for short time(10-15 minutes in each Lesson).

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| | Main Conductor |
| | <u>YUMINO</u> |
| 1. Orientation to the Contents of the Lecture. | |
| 2. A Theory of “Student Leading Lesson: Participation Lesson”, and | |
| Guidance to the Lesson. | Group 1 |
| 2. Using “Participation Lesson Plan, Students conduct a Lesson. | Group 1 |

3. Preparation hour for each group.	All Groups
4. Learning with Portfolio: Theory and Practice in School Setting.	Group 2
5. Evaluation of "Picture Diary that was drawn based on the Outdoor Experiences.	Group 2
6. Theories of Creativity and Its Cultivating Methods	Group 3
7. Practice of NM (NAKAYAMA Masakazu) Method	Group 3
8. Unconsciousness and Creativity	<u>YUMINO</u>
9. The Theory of "Efficacy" and Its Application to Classroom	Group 4
10. Fostering Efficacy in the Classroom	Group 4
11. The Theory of Concept Mapping and Its Application to Classroom	Group 5
12. Practice of Concept Mapping	Group 5
13. Reflection of all Lessons using by Portfolio	All Groups
14. Summary of the Lecture	<u>Yumino</u>
