

FOR THE EXPANSION OF MAP USAGE IN SCHOOL -- WORKING GROUP ON THE PROMOTION OF MAP USAGE IN SCHOOLS

KUMAKI Y.

Senshu University, KAWASAKI-SHI, JAPAN

Maps are widely used as digital contents recently. The progress of the ubiquitous mapping technology gives us a lot of convenience. In such era, the importance of the acquirement of map literacy is getting bigger. It is also important for the people living in a globalizing world to understand spatial situation through maps to understand global and regional issues at present, e.g. environment, natural resources, big disaster, food supply, new infections, wealth and poverty, racial crash, etc. Therefore, it is very much desirable that people have a lot of chances to see and use maps from their childhood and get map literacy well.

Japanese children learn maps mainly in the class of geography field of the compulsory school subject "social studies" in elementary school (6-12 years old) and junior high school (12-15 years old), and a selective subject "geography" in high school (mostly 15-18 years old). All pupils who learn such subjects are supplied with "school atlas" as a kind of textbook. The systematic map studies are suitable to be done in the geography class. The usage of maps, however, is not, and should not be, limited in the geography class. It is of great value to use maps in any activities other than geography class in school life.

The "National Curriculum" authorized by the Ministry of Education, Culture, Sports, Science and Technology (MEXT) is revised once a decade in Japan. It is currently being migrated from old one to new one. It is notable that the new one gives emphasis to the effective usage of the "school atlas." The new one also says that maps as well as chronological tables should be used in the Japanese history class and world history class in high school, which is a very new statement in the "National Curriculum." Thus, the importance of map usage in school classes is now broadly recognized.

There are, however, some difficulties for the promotion of map usage in schools, e.g. shortage of time, insufficiency of adequate materials, etc. The biggest is the problem of teacher's specialty. Large parts of school teachers have had no (or very little) cartography education in universities, and they are not familiar with maps. Considerable teachers are not able to handle maps well in schools. Even though a teacher has rich knowledge of cartography, he/she does not know how to use maps well in various school lives as well as in geography class. There is no guidebook for such teachers.

The "JCA (Japan Cartographers Association) -JMC (Japan Map Center) Joint Working Group on the Promotion of Map Usage in Schools" started its activity in 2008 for the improvement such situation. The WG mainly consists of professors of geography education, teachers of elementary school, junior high school and high school. The members of the WG have collected actual examples and ideas of good map usage in schools, and edited short articles each of which shows an individual case written by the WG members and teachers. The articles were serialized from April, 2009 to March, 2011 in the monthly magazine *Chizu Chushin* published by JMC. In addition, a symposium entitled "Maps spread learning" was held in the 2009 annual conference of the JCA. Presenters of the symposium were six WG members.

EXAMPLES AND IDEAS OF MAP USAGE IN SCHOOLS

Examples and ideas of map usage in each school subjects are as follows:

National language: To deepen the reading comprehension by imagining the area drawn by literature works through maps.

History: 1) To learn historical facts influenced by geographical condition by using maps. 2) To know the human life and production activity of old times by using old maps. 3) To visit historical heritages with maps.

Arithmetic/Mathematics: 1) To realize the concepts of "large number," "distance" and "speed" by using maps. 2) Land elevation and water depth show concrete examples of positive and negative numbers. 3) Map scale assists to understand "ratio" and "proportional."

Science: 1) To see typical geological site on the school atlas or Google Earth satellite image.

2) To study the relationship between living things and environment by using some living things distribution maps.

Foreign language: To practice foreign language conversation of introducing countries or cities or special sites by using maps.

Music: To add emotions while singing a song or to appreciate a music work deeply by imagining the scene that the songwriter or the composer expressed through maps.

Arts: To design maps and to make 3-D maps.

Home economics: To study the production areas and circulation routes of food, clothing, etc. by using maps.

Health and physical education: To take up the subject of Olympic Games or World Cup with a world map.

Overall learning: To study environment of immediate area and to make thematic maps.

Map usage is also effective for some other school activities as follows:

Field trip: To plan the trip and execute the trip with maps.

Disaster management and security: To know and publicize the place where the disaster damage or traffic accident or crime is open to occur by maps.

THE ARTICLES OF CHIZU CHUSHIN

Each articles of Chizu Chushin is of two pages of color printing. The 24 (two-year) contents of the articles are as follows:

1. Author: TABE T. (university professor of geography education, former elementary school teacher)

Title: Chorus "Cherry Blossoms," words written by TAKESHIMA Hagoromo

TAKESHIMA described a beautiful riverside spring scene in a famous Japanese chorus song "Cherry Blossoms" composed ca. 100 years ago. The author showed the topographic maps at that time and at present for the imagination of the scene.

2. Author: IDA Y. (university professor of geography education)

Title: National language education with maps

The author proposed a class in which pupils search the story place of a novel in the school atlas and then verify the scenes using topographic map.

3. Author: KUMAKI R. (elementary school teacher)

Title: Learning the process of flowing water with maps

The author reported a science class of fifth grade the topic of which was erosion and sedimentation by flowing water. The school atlas and the Google Earth image were used in the class.

4. Author: YOSHIDA K. (elementary school teacher)

Title: Usage of maps in arithmetic class of the elementary school

The author showed how maps and country names are used in elementary school textbooks of arithmetic and reported a field lesson of distance with maps.

5. Author: ABE M. et al. (graduate students of history education)

Title: Usage of remains of the war in history class

The authors reported a modern history class in classroom and in field using present and old topographic maps which show historical remains.

6. Author: HORII M. (high school teacher)

Title: Effective world history education by using maps

The author pointed out the importance of geographic circumstances maps to understand the reasons why various historical facts occurred. She reported an example of an effective map usage in the class of the expansion of Russian Empire territory.

7. Author: NAKAYAMA M. (elementary school teacher)

Title: The cradle of chorus song "Autumn Leaves"

The topic of this article is a famous Japanese chorus song ("Autumn Leaves") composed ca. 100 years ago, just as the article 1). Topographical maps are shown in this article.

8. Author: SHIMURA T. (university professor of geography education, former high school teacher)

Title: National language education with maps and atlases

The author proposed a class in which pupils understand a climate condition and landscapes in the story of a novel by the thematic maps in the school atlas and an old topographic map.

9. Author: TANJI T (teacher of a school for blind)

Title: How to touch maps

The author reported what the tactile map and tactile globe are and how they are used in school for blind

10. Author: ARAI M. (junior high school teacher)

Title: Teaching maps in schools of England

The author reported the contents of "Geography" in "The National Curriculum for England," characteristics of textbook of geography and school atlas, and actual classes using them in elementary and secondary education in England.

11. Author: HIRASAWA K. (principal of a junior high school)

Title: Usage of maps in mathematics class of junior high school

The author showed some examples of map usage in mathematics class of junior high school, i.e. land elevation and water depth for the unit "positive and negative numbers," index number of topographic map series for the unit "coordinate," map scale for the unit "geometric similarity," etc.

12. Author: TERAMOTO K. (university professor of geography education, former elementary school teacher)

Title: Spatial cognition of the elementary school children

The author proposed an effective method to develop spatial cognition of 1-2 grade children using home-to-school route maps they drew in the class of life environment studies in elementary school.

13. Author: TAKAHASHI S. (junior high school teacher)

Title: Local history learning and cadastral maps

The author showed an example of usage of old cadastral maps for local history learning. The comparison of old cadastral maps and old topographic maps and modern high-precision large-scale maps leads the understanding of landscape and human life of old times.

14. Author: IDA Y. (see 2.)

Title: Topographic maps and literature -- A case of "Twenty-four Eyes"

"Twenty-four Eyes," a famous Japanese novel, was written based on the actual experience of the novelist. The author of this article proposed a class in which pupils verify the description of the novel in actual topographic map and study the reasons of the conducts of people in the novel.

15. Author: KUMAKI R (see 3.)

Title: Joyful foreign language activities with maps in elementary school

The author reported a series of introductory classes of English in elementary school, the goal of which was that each pupil made a two-way speech introducing a country he/she wanted to visit, a world map and national flag cards were shown in the speech.

16. Author: IWAMOTO H. (university professor of geography education, former elementary school teacher)

Title: Map usage in school excursion

The author pointed out that the 1:10,000 topographic map is very useful when pupils plan the course of field trip and conduct by themselves, showing a case of a visit to Nara, an ancient city.

17. Author: TABE T. (see 1.)

Title: Disaster prevention studies using the case of New Orleans

Learning of disaster in geography class, especially about hazard maps, is emphasized in the new "National Curriculum." The author showed the suggestive case of the damage of New Orleans by Hurricane Katrina of 2005.

18. Author: NAKAYAMA M. (see 7.)

Title: Map usage in life environment studies of elementary school

The author reported an actual field survey by 1-2 grade pupils in the class of life environment studies. A map was made as the final result of the survey.

19. Author: NAKADSUKA Y. (high school teacher)

Title: Learning the world through the World Cup Soccer

Students are very interested in World Cup of soccer. A map showing countries where the World Cup took place and countries which won is also interesting for them. Using such map, the author made a class of international understanding.

20. Author: TANAKA N. (curator of a science museum)

Title: What do the maps of plant distribution show?

The author showed some maps of plant distribution and indicated that such kinds of maps are useful for the study of the natural environment and biodiversity.

21. Author: ITO K. (university professor of geography education)

Title: Familiarizing place names of Ainu through maps

"Ainu" is a former inhabitant in Hokkaido, the northernmost of four major islands of Japan. There are a lot of place names coming from Ainu language in Hokkaido. Picking up such place names in school atlas maps and investigating their meaning, and trying to name newly to familiar places and writing the names on maps, are good way to understand Ainu culture.

22. Author: KUMAKI Y. (university professor of geography and cartography)

Title: Entering a map work in map contest

Some children's map contests are held every year in Japan and a lot of children enter their original map in the contests. In most cases their works are thematic maps the content of which is based on their own fieldwork. Such contests give incentive to children. Barbara Petchenik Children's Map Competition is also unforgettable.

23. Author: ABE K. (former elementary school teacher)

Title: Three-dimensional mapping of "my town" by 3-grade pupils

The author reported an execution of 3-D mapping in a 3-grade class of an elementary school. The map was made as the result of integrated activity over several subjects, based on a large-scale topographic map and pupils' field surveying.

24. Author: ANDO K. (high school teacher)

Title: Learning design from tourist maps

(Now in press)

CONCLUSION AND FUTURE PLANS

The series of these articles have a good reputation in general. Although the published cases are limited, they suggest a lot of possibilities of map utilization in schools. The biggest problem of the WG until now is that the circulation of *CHIZU CHUSHIN* is not so wide and the readers are people who are familiar with maps. Most school teachers who need suggestion for map usage do not know *CHIZU CHUSHIN*. The WG, therefore, must try to spread the results of its activities. We are now planning to make a textbook for school teachers containing these articles, and use it in the seminar for teacher license renewal.