

Inspecting Proactive Methods for Improving Competencies and Capabilities of Japan's Science Teachers through Teacher Training : Practical Examples as the Foundation for Themed Research into Science Teacher Training

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1. Introduction

The Purposes of this presentation

To consider how detailed science teacher training examples show a path for teachers to embody the image of continuing education and proactively improve their capabilities through training.

Core of teaching policies in Japan

The most important issue is to form and improve competencies and capabilities of teachers, so that **they can continue their inquiry and embody the image of continuing their education.**

Capabilities Needed by Science Teachers

- Universally needed capabilities : a sense of mission and responsibility toward teaching, a love for education, professional knowledge that relates to subjects and teaching, practical teaching skills and attributes that make the teacher a full person.
- **Capabilities to correspond to the era's changes :**
The desire to continue learning, and the ability and knowledge to gather, sort, and use information to organize in an organic way.

The Central Education Council, 2015



Issues of teacher training in Japan

There are many forms of teacher training available to Japan's teachers, however...

- Teachers are motivated to learn, but they are difficult to find the time in their busy schedule.
- It is necessary to develop an environment where teachers can maintain motivation to keep learning themselves.

etc...

The Central Education Council, 2015



Research questions of this presentation

How much can teachers raise their awareness about the need to continue learning and proactively improve their capabilities, while trying to avail themselves of teacher training opportunities in their busy lives?



2. Capabilities Needed by Science Teachers

Ohtaka, 2008

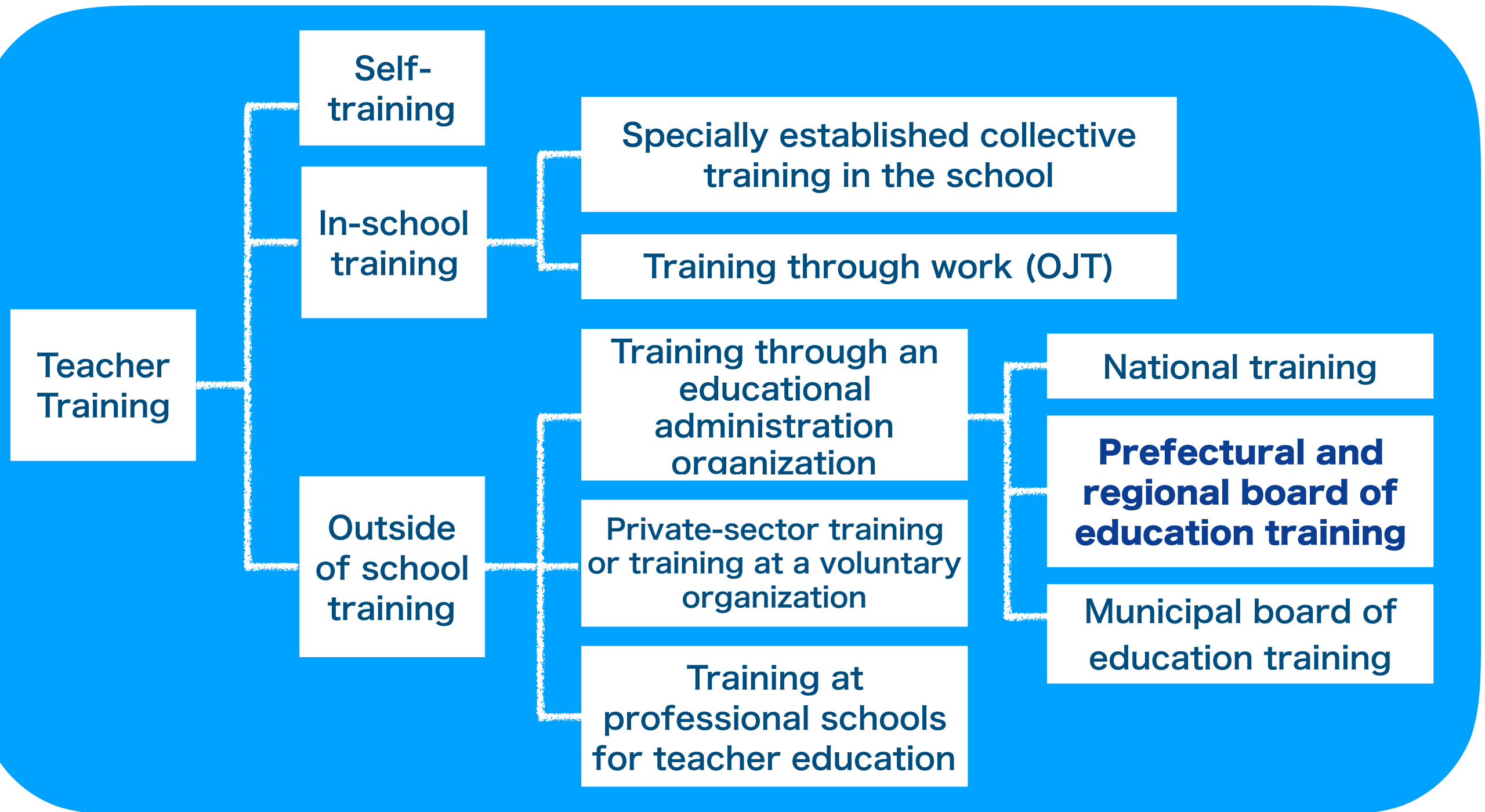
- **Pedagogical principle competency**
- **Basic practice competency**
- **Skillful practice competency**
- **Pedagogical research competency**
- **Pure science research competency**

It is vital for science teachers to balance these five core competencies while improving their competencies and capabilities.



3. Practicalities of Teacher Training Improving Science Teacher Capabilities

❄️ Types of teacher training in Japan

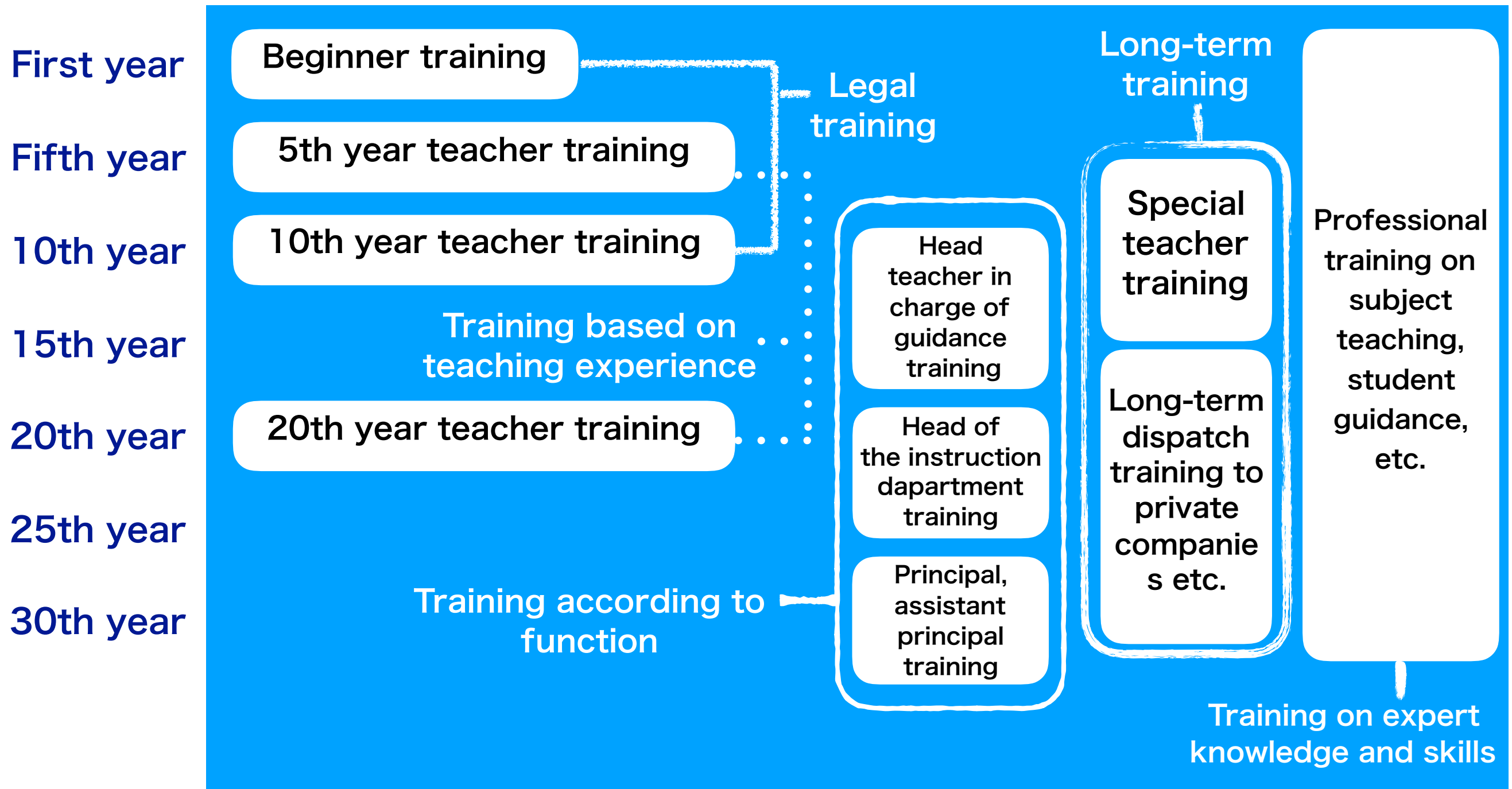


Source: "Teacher Training Guide 2018", 2018, p3



Teacher training established by life stage

Representative case of teacher training conducted by prefectural board of education.



※The content of teacher training differs somewhat by each prefecture.

Source: The Central Education Council



Outline of teacher training contents and method

Contents

In case of beginner training

- Fundamental knowledge
- Classroom administration
- Subject teaching
- Moral education
- Special activities
- Period for integrated study
- Student guidance
- Career guidance
- etc.

Source: The Central Education Council

Method

- **Transmission type**
for example lectures, symposia etc.
- **Participatory type**
for example workshops, poster sessions etc.
- **Themed research type**
for example case studies, demonstration lessons etc. etc.
- **Participatory type**
for example practical training, tours, field work etc.
- etc.

Source: "Teacher Training Guide 2018", 2018





Teacher Y's long-term (1 year) teacher training through the national prefectural board of education (2001-2013)

Years of Experience	Training Outside of School	Science Teacher Training
First year	Beginner training (legal training) (28 times + volunteer activity training)	Themed research (10 times)
Fifth year	5th year teacher training (training based on teaching experience) (5 times + societal experience training)	Youth science museum in T city societal experience training
7th year	Special teacher training at X prefectural center (25 times)	Themed research (16 times)
10th year	10th year teacher training (legal training) (10times)	Themed research (6 times)



Special teacher training at X prefectural center

Training objective

The special teacher training at the X prefecture educational training center to nurture people who could take on leadership qualities at local schools and in other areas, and to raise the level of teaching material and leadership qualities, through lesson plans.

Recruitment conditions

In principle, having a teaching experience of 5 years or more.

Number of training

16 times(science training)/25 times a year (once a week)

Number of training

Mainly the X Prefectural Education Center



Special Teacher Training in Science-themed Research Received by Teacher Y at X Prefectural Education Center (fiscal 2007)

Session	Time	Contents of Science Teacher Training
1	mid April	Understanding and working toward solving the issues for improving lessons
2	late May	Analyzing in detail the policies for improving lessons, observing video of your class and lesson study
3	mid June	Report on the progress in improving lessons, detailed analysis of policies
4	late June	Report on the progress in improving lessons, detailed analysis of policies
5	early July	Decide on research theme for improving lessons , analyze and report on progress for improving lessons
6	mid July	The fruits of improvement based on this training, and announcement and confirmation of the plan for themed research
7	early August	Progress in themed research, report on self-training during summer vacation, literature survey for themed research
8	late August	Practice of trial class and lesson study
9	early September	Report and analysis of progress in themed research
10	mid October	Creation and submission of (mid-term) report on this training
11	late October	Observe class by accomplished biology teacher
12	early November	Observe demonstration lessons and lesson study by Trainee C (chemistry teacher)
13	mid November	Perform Teacher Y's demonstration lessons and lesson study
14	late November	Report and analysis of progress of themed research
15	mid December	Observe demonstration lessons and lesson study by Trainee B (biology teacher)
16	January	Finish themed research, create and submit report





4. Conclusion (1)

Through three specific examples of unique themed research, it is suggested that teachers can proactively form and improve their competencies and capabilities.

- The first is when the teacher chooses his or her own theme and forms the voluntary training in the school, outside of the school, and on their own.
- The second is through various ways such as observing video of your class, trial lessons, and demonstration lessons, and each time the lesson study was conducted.
- The third is when the trainer cooperatively works to pick a theme for the research.



4. Conclusion(2)

For teachers to maintain a constant spirit of curiosity to promote their own learning, the most effective policy is for the teachers to actively take advantage of research opportunities that explore science teacher training, which helps them to proactively identify the issues and make improvements in the practical aspects of education.



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