Science Education Assistants for Elementary School in Japan

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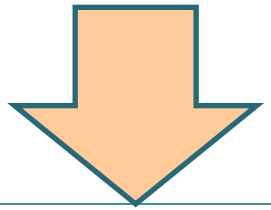
Introduction

Nation-building on the basis of science and technology



- An increase in the total number of science lesson hours
- Increases in the extent of subject matter covered
- Enhancement of observation and experiment activities

Central Council for Education (2008)

However…..

- 57.8% of Japanese elementary school teachers felt their science skill level was low

- 66.6% had no workshop for science teaching in their schools throughout year

- 72.3% teachers answered they did not have enough time for setup/clean up for observation and experiment sessions

The Center for Promotion of Science Education of the Japan Science and Technology Agency & the National Institute for Educational Policy Research (2008)

Japanese elementary school teachers need assistance for teaching science as well as managing resources in science classes .

Science Education Assistant Allocation Project (SEA project, *Rika-Shien Jigyo*) by Japanese government MEXT and JST

(FY2007 budget: approx. 2 billion yen)

The purposes of the project:

(1) Enhancement of observation and experiment activities in elementary school science education

(2) Stimulation of elementary school teachers for improving qualifications.

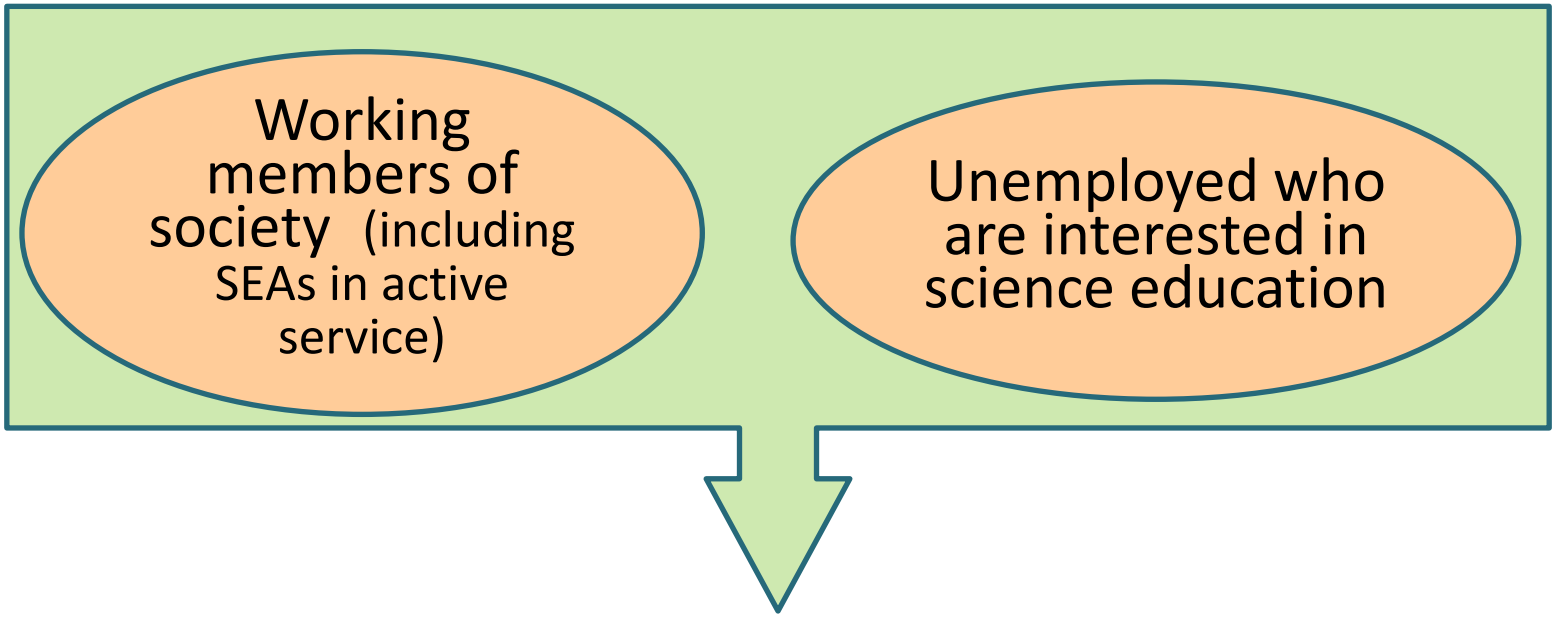
Ministry of Education, Culture, Sports, Science and Technology [MEXT] (2007)

Purposes of This Study

- Development of Science Education Assistants (SEAs) training program in response to the re-learning needs of adults

The Lifelong Learning Council at MEXT recommended “Contribution to the community members with learning achievements participate in class as teaching assistants.”

Our Approach (1) target



contribution to the process of building a lifelong learning society

Our Approach (2) curriculum

- School Literacy (90 min X 3 lessons)
- Science Practice (90 min X 10 lessons)
- IT in Teaching Materials (90 min x 3 lessons)

Participants in the program did not always have to take all of the activities, but chose one or two, when they felt that they had specific skills.

Our Approach (3) qualification test

- School Literacy (Fill-in-the Blank)
- Science Practice
  (Practical & Short answer writing)
- IT in Teaching Materials (Practical)

Trained science education assistants were expected to take a qualification test. For those who passed the test, Ochanomizu University offered a certificate for the SEAs.

School Literacy

- Running the SEA system
- Understanding lesson plans in science classes
- Communicating with children

Trainees will

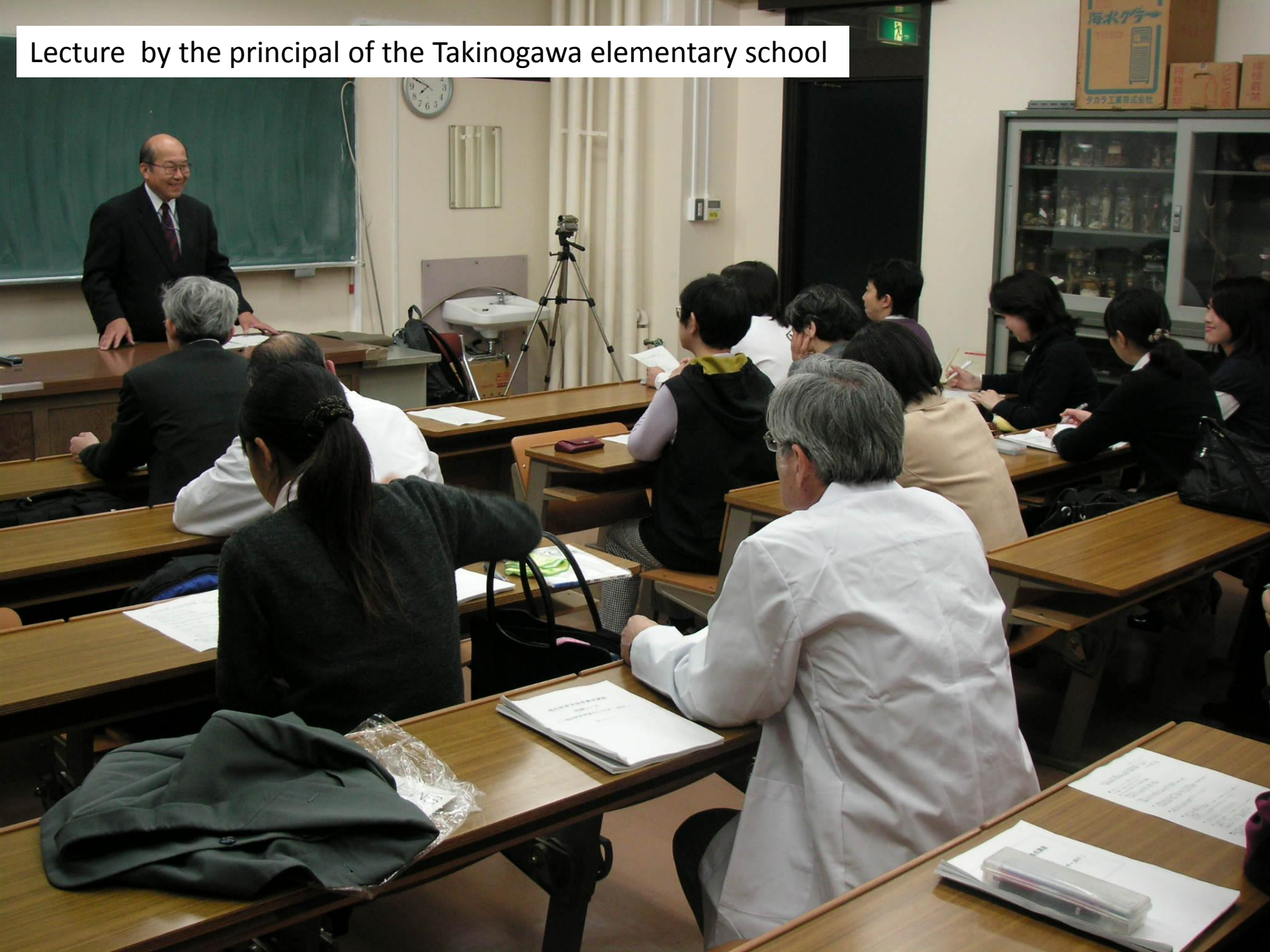
(1) be able to communicate class teachers (and children) effectively

(2) understand basic school rules and national course of study

(3) be able to find expected works to help teacher of science classes using lesson plans made by teachers

(4) be able to look after children in science classes from standpoint of basic child psychology

Lecture by the principal of the Takinogawa elementary school



Science Practice

- Maintenance of science laboratory
- Safety control
- Contents from the national course of study

Trainees will

(1) be able to manage and prepare science educational materials and equipments in elementary schools

(2) learn basic knowledge and skills for experiments and observations from the national course of study's Content A (Matter/Energy) and Contents B (Life/the Earth) of the five and six grades

(3) Learn how to manage the science room and science resources

How to maintain the laboratories

learn basic knowledge and skills for experiments and observations

IT in Teaching Materials

- Excel
- Word
- PowerPoint Presentation

Trainees will

(1) be able to prepare teaching materials on the internet in elementary schools

(2) learn how to set up IT equipment, and to make educational materials by using Word, Excel, and Power Point Presentations

(3) be able to manage computers and projectors

IT in Teaching Materials

Findings

A total 113 trainees participated from 2007 to 2009.

- 56% current employment as SEAs
- 20% unemployment (homemakers or retired)
- 5% full-time employment
- 8% part-time employment
- 3% students, 8% others (none of above)

Confidence of working as a science assistant after the training program

78% of participants feel good or little good at assisting science and science subject

82% of participants admit their knowledge and skills about science contents are high or a little high

Conclusion

- Receiving the certificate, trained science education assistants can increase their value to board of education which are employers of SEAS when they apply for a job as a SEA.

- The board of education also used this training program to increase skills of their active SEAs.

Further studies are required to determine the evaluation of knowledge and skills of pre- and post programs.

Thank you for your attention

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