



A Study on Training Teachers Who Continue to Learn Proactively

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Abstract

In Japan, improving the qualifications of teachers has become an issue. According to the "Report on Enhancing the Qualified Ability of Teachers Who Will Be Responsible for School Education in the Future" (December 21, 2015) [1], measures will be taken to enhance in-school training where teachers learn from each other on a daily basis through on-the-job training while supporting each other and their colleagues, as well as to support training where teachers take ownership of their own tasks and conduct training autonomously and independently. In this paper, I would like to discuss the following. The purpose of this paper is to examine the nature of training for teachers who continue to learn independently, which will be required in the future, by focusing on the policies of Core Science Teacher (CST), a project supported by the Japan Science and Technology Agency (JST). The results of the survey in 2015 (Asahara et al.) [2] showed that the CST program was voluntarily continued in 12 regions, even though JST support had been terminated in 14 regions. According to the results of the questionnaire survey, 98% of the in-service CSTs answered that they were using what they learned in the program in their subsequent activities. The survey was conducted to find out what kind of situations they were using the program in, and to consider the elements necessary for the future training of teachers. Specifically, based on an interview with a supervisor at the Kochi Prefectural Board of Education, which is continuing to implement the CST project in 2021, we examined the elements necessary for the training of teachers who continue to learn. As one of the factors, it was inferred that the CSTs in Kochi Prefecture played a major role in fostering teachers who continue to learn independently by planning and managing their own training. It became clear that only by having a place to apply what they have learned can they reaffirm their own learning, and that this will lead to independent learning.

Keywords : *Teacher Training, JST Policy, Core Science Teachers*

I. Purpose of the Study

On December 21, 2015, the "Improving the Qualifications of Teachers for Future School Education" (Report) was issued. According to this report, the specific direction of the reform of teacher training is that "teachers grow up in schools" and that measures should be taken to enhance in-school training in which teachers support each other and learn from each other on a daily basis through on-the-job training, as well as to support training in which teachers take charge of their own tasks and conduct training autonomously and independently.

2. Outline of JST Policy

2-1 Goals of the Center for Science and Mathematics Teacher (CST) Development Project (hereafter referred to as the CST Project)

With the aim of improving the teaching ability of elementary and junior high school teachers in science and mathematics education, universities and boards of education will collaborate to develop and implement training programs and build and utilize regional centers of excellence in science and mathematics education to train teachers who will play a central role in regional science and mathematics education.

2.2 Status of students and teachers from then (2009) to now

(1) Comparison of international surveys: "I like studying science"

Comparison of international surveys: "I like studying science" The percentage of junior high school students who have an interest in science and answer "I enjoy studying science" is lower than in other countries. In order for Japan to lead the world in science and technology in the future, it is important to increase the number of children who "like science."



(2) Number of teachers by age in public elementary and junior high schools

As pointed out by the "Special Subcommittee on the Improvement of Teachers' Qualifications" of the Ministry of Education, Culture, Sports, Science and Technology (MEXT) in 2010, "There is concern that 34% of all teachers, or just under 200,000 teachers, will retire in the next 10 years, creating a large number of inexperienced teachers. In Japan, the improvement of teachers' qualifications and abilities has been done more through the transfer of knowledge and skills from senior teachers to new teachers in the course of their practice in the field after being hired, rather than at the training stage. In the future, it is expected that it will be difficult to pass on this information.

2.3 Aims of JST's Policy

As part of the Ministry of Education, Culture, Sports, Science and Technology's measures to enhance science and mathematics education, JST supports the training and activities of "core science teachers" (CSTs), elementary and junior high school teachers who play a central role in local science and mathematics education. In addition to providing excellent educational practices for children, CSTs provide a variety of activities for local elementary and junior high school teachers to improve their science teaching skills with the support of prefectural and municipal boards of education.

2.4 Training of CSTs

CSTs will attend CST training programs at universities and boards of education that implement CST projects. They will be able to acquire practical leadership skills through a program that enriches and reinforces existing teacher training courses through cooperation between universities and boards of education.

3. Background and Results of JST Policy

3.1 Background of JST Program

JST selected seven regions for the CST program in 2009, five regions in 2010, two regions in 2011, and two regions in 2012, and the program ended in 2015 because of its four-year support period.

3.2 Projects adopted by the Center for Science and Mathematics Teachers (CST) Development Project

Implementing organization	Support period	Project name
Ochanomizu University/Tokyo Metropolitan Board of Education	2009-2013	Training of elementary and junior high school teachers with a "spirit of science"
University of Fukui / Fukui Prefectural Board of Education	2009-2013	Construction of a self-development CST training and support system using regional and school bases
Gifu University / Gifu Prefectural Board of Education	2009-2013	Cultivation of CSTs through an autonomous growth program in collaboration with the Board of Education and the university's science and engineering faculty
Shiga University / Shiga Prefectural Board of Education FY	2009-2013	Comprehensive training program that incorporates early CST activities through strong collaboration between the university and the board of education
Kagoshima University / Kagoshima Prefectural Board of Education FY	2009-2013	Project to establish a practical core science teacher training school and activity base
Yokohama National University/Kanagawa Prefectural Board of Education	2009-2013	Kanagawa CST Plan to improve science education through organic collaboration among local educational and research institutions
Nagasaki University / Nagasaki Prefectural Board of Education	2009-2013	Construction of a system for training and utilizing core science teachers to revitalize local areas
Joetsu University of Education/Niigata Prefectural Board of	2010-2014	Project to develop CSTs with excellent science literacy and observation/experiment teaching skills



Education		
Shinshu University / Nagano Prefectural Board of Education	2010-2014	Teacher training program to support expertise and practical skills as a science evangelist
Aichi University of Education / Aichi Prefectural Board of Education	2010-2014	Development and implementation of CST activity program through collaboration among teacher training universities, science and engineering faculties, and education centers
Okayama University/Okayama Prefectural Board of Education	2010-2014	Formation of a network base for science and mathematics teacher training that can develop the real pleasure of science into subject composition and training composition skills
Kochi University / Kochi Prefectural Board of Education	2010-2014	Kochi CST Program for Improving Science Education in the Local Community with an Emphasis on Improving Basic Skills
Osaka University of Education / Osaka Prefectural Board of Education	2011-2015	CST training and establishment of a network of regional science centers through collaboration between in-service teachers and students
Kagawa University / Kagawa Prefectural Board of Education FY	2011-2015	Construction and implementation of a CST training system aimed at improving teaching practice skills with an awareness of the relationship with daily life and society
Saitama University/Saitama City Board of Education	2012-2016	Construction of Saitama CST Network to sustainably improve local elementary and junior high school science education capabilities
Mie University / Mie Prefectural Board of Education	2012-2016	Establishment of a science class support system through CST training

3.3 Project Questionnaire Results (from JST, FY2013)

- ① In the questionnaire survey of the project staffs of the implementing institutions (universities and committees), 96% of them answered that the project was able to achieve the originally planned objectives.
- ② Students and in-service teachers taking the Core Science Teacher (CST) Training Program were asked whether the courses they took were effective in terms of "acquiring leadership skills", "developing knowledge", and "acquiring skills", and more than 90% of them answered that the courses were effective.
- ③ Ninety-eight percent of the in-service CSTs who completed the CST training program responded that they "utilized what they learned in the program in their subsequent activities."

4. Discussion

4.1 Outcomes and challenges of the JST project

The CST project was supported for four years, so it was terminated as a JST project in FY2015. According to the survey in 2015 (Asahara et al.), the CST project has been continued voluntarily in 12 regions, even though the JST support has been terminated in 14 regions. Even if the project achieved great results during the period of support, the activities often decline with the end of support. It is noteworthy that the CST projects continue to be rooted in the local communities even after the support ends. From the results of the above questionnaire, it can be inferred that the contents of the program were in line with what the teachers in the field were looking for. According to the results of the questionnaire survey, 98% of the in-service teacher CSTs answered that they utilized what they learned in the program in their subsequent activities. It is important to identify the elements necessary for the training of teachers in the future by clarifying in what situations they apply what they have learned.

4.2 Necessary elements for training

From the interview with the supervisor of the Kochi Prefectural Board of Education, which is continuing to implement the CST project in 2021, we will examine the elements necessary for the training of teachers who continue to learn. I believe that it is important to set up a place where CSTs can apply what they have learned as a necessary element for CSTs to be active and lively. In Kochi Prefecture,



there are 71 CSTs, so they are familiar to the teachers and can grasp the training needs of the teachers in the field. The CSTs play a major role in fostering teachers who continue to learn proactively by planning and organizing training. In addition, the CSTs are able to work together to practice what is difficult to do alone, and the presence of their peers encourages them to learn, leading to the building of a network among CSTs.

5. Conclusion

In order to construct a training program for teachers who continue to learn proactively, it is necessary to construct a place for them to output what they have learned. Only when there is a place to apply what they have learned can they reaffirm their own learning, which will lead to proactive learning.

References

- [1] Ministry of Education, Culture, Sports, Science and Technology (MEXT) (2015) "Enhancing the qualifications of teachers who will be responsible for school education in the future
- [2] Asahara, M., Nishizawa, T., Tsukimasu, H., Hosoe, E. (2016) An Empirical Study on Core Teacher Training and Support for Elementary and Junior High School Science Education, The 32nd Research Grant Report of Casio Science Foundation.