

# カリキュラム開発における授業研究の機能

## A Function of *jugyokenkyu* [pilot studies] in Curriculum Development

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### ABSTRACT

「万人のための教育」を推進するためには基礎教育の質の確保が肝要であると指摘されるが、カリキュラムの児童への密着 (localization) は、その重要な要件と考えられる。日本の教育現場に慣習化している「授業研究」は、それを可能にする一つの有効な手段と考えられる。本論は、その活動の過程と活動の成果品としての指導案を分析するとともに、その利点と成立の鍵を握る教員養成の課題を考察する。

指導案の形式は様々であるが、教師の児童理解と教材研究に基づく明確なねらいをもって授業に臨ませる機能は共通して見い出される。採択されようとしている指導法の妥当性は、研究グループのなかで検証される。授業後の検討会においては、主に授業に対する児童の反応を尺度に評価される。授業の改善という目的を参加者が共有した検討がなされるので、授業を行う教師の技量向上はもとより、教師集団の全体的な力量向上をもたらす得る。こうした手法が制度的に根づくとき、新たに浮上する課題のカリキュラム化も可能にする。

## Introduction

The importance of the role of teachers in the improvement of quality basic education has been emphasized throughout the Jomtien EFA decade, i.e. from Jomtien (1990) to Dakar (2000). It was stated in the *World Declaration on Education for All: Meeting Basic Learning Needs* as follows:

“Article 4. Whether or not expanded educational opportunities will translate into meaningful development - for an individual or for society- depends ultimately on whether people actually learn as a result of those opportunities, i.e., whether they incorporate useful knowledge, reasoning ability, skills and values.”

That education, however, has not been realized fully yet. The term curriculum per se is not easily defined. It varies from one country to another, even among English speaking countries. In some countries, curriculum refers to standard academic achievement level, whereas in others, curriculum includes every aspect of school life as a whole including not only subjects but also various extra-curricular activities. In Japan, the course of study is considered for the intended curriculum and also the norm for the selection of teaching contents, and the teaching methods or approaches to be taken are inclusively recommended. The objectives and the contents of each subject are prescribed in it, and all the textbooks are stipulated to follow it. An annual education program or curriculum structure (*nenkanshidokeikaku*) is basically developed at each individual school, following the course of study, and the municipal Board of Education is responsible for its quality

control. A lesson plan of a unit in the textbook written by a teacher is coordinated with the annual education program of the school. Therefore, the lesson plan is considered a component of the curriculum.

When the introduction of Life and Environment Study, a new subject for lower primary level, was officially announce in Japan in 1988, practical experiences to deal with the new subject had been in fact accumulated and shared among the teachers in practice, and source books had already been published. There was not so much confusion in the implementation of the new subject, therefor. The Tokyo Metropolitan Board of Education, for example, with the implementation of the new subject, distributed a new instruction material for it, which helped teachers organize a program for the subject. The outcomes of pilot studies pursued among teachers who believe in the effectiveness of holistic approaches of integrated learning for the lower grades and conducted at selected schools (*kenkyukaihatsu gakko*) contributed to these publications, providing sample lessons (Kojima, 2002b). Those samples were planned and improved through an institutionalized Research and Development (R&D) activity among teachers in practice in Japan called *jogyokenkyu*.

The scheme of the R&D activity will be discussed from the point of curriculum localization in this paper. First, the paper will consider the technical procedure of *jogyokenkyu*, examining Sasaki's theory (Sasaki, 1997). Several lesson plans as the outcomes of the R&D activity will be analyzed, focusing on a case of Grade 4

Mathematics of *Tokyo kyoikukenyuin*, which is established as an institution of in-service teacher training. Then, the benefits of the scheme to function as a driving force of curriculum development that facilitates the active participation of pupils in a lesson and stimulates the awareness of teachers to respond to their specific needs will be argued.

## 1. The Technical Procedure of *jugyokenkyu*

There are the cases to be implemented for an academic study dealing with lessons; however, *jugyokenkyu* is defined in this paper as the whole process of R&D activity for curriculum implementation among teachers. Although such activities are sometimes organized at the municipal or prefectural level and may serve as an institutionalized opportunity for making progress in a teaching career, *jugyokenkyu* is primarily conducted at the school level for improving the skills of teachers and thus the quality of instruction. Teachers in Japan, particularly at primary level, work together to improve the lesson, learning from each other.

The technical procedure of *jugyokenkyu*, according to Sasaki, consists of the following three components: planning, implementation, and evaluation. The elements of its technical structure are summarized in Table 1. The process of planning is in fact invisible and complicated; however, it contains very important elements for the whole activity. That includes a preparatory study (*kyozaikenkyu*) and an understanding of the pupils in the classroom (Figure 1). The details of each component will be examined in this chapter.

### 1. 1. Planning

The teacher begins the planning with efforts to understand the pupils in the classroom, treating them as a group as well as individuals. Conducting a survey in order to analyze their problems, the teacher carefully examines their characteristics, considering their situational condition (school environments, local community and their family etc.). The teacher figures out their specific needs and characteristics as a group while he/she identifies individual assistance needs.

The teacher also works on an in-depth

Table 1 Technical Structure of *jugyokenkyu*

Components	Major Activities	Actor(s)
Planning	① Preparatory study (Survey): – In-depth study of the teaching material – Examining the related curriculum structure – Drafting a lesson plan	The teacher
	② Examining the draft in a study group	Study group
	③ Re-organizing the draft	The teacher
	④ Re-examining the draft	The teacher
	⑤ Examining a hypothesis	Study group
	⑥ Finalizing the lesson plan	The teacher
Implementation	– Implementing the lesson plan – Taking a record of observation	The teacher Study group and others
Evaluation	– Organizing a review meeting	Study group and others

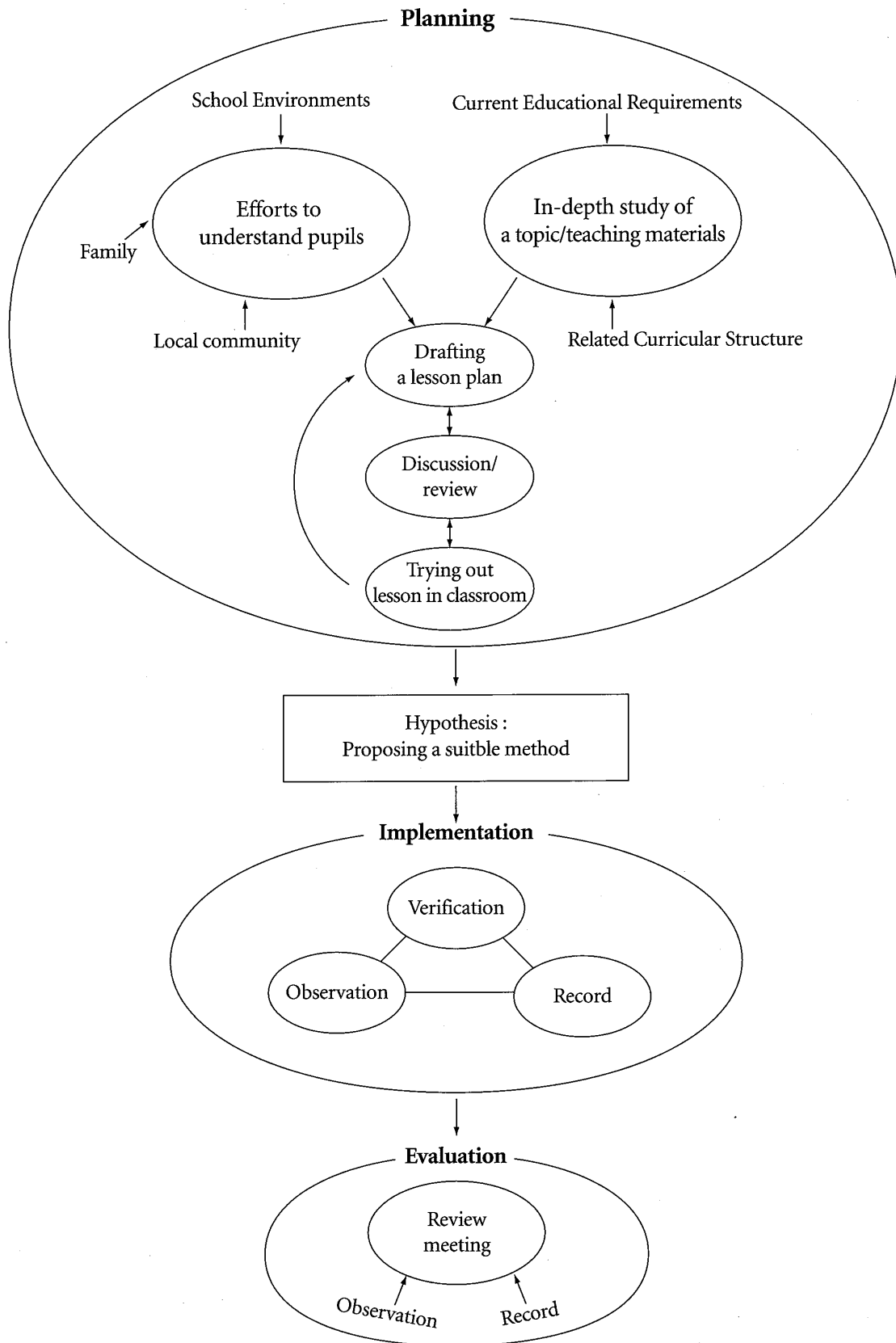


Figure 1 Process of Jugyokenkyu

study on the topic and/or the material he/she is going to deal with, examining the issues that are currently called for in society (*kyozaikenkyu*). This includes the interpretation of teaching material, understanding the related curriculum structure based on the course of study and the development of teaching aids. The goal of the planning is to set out a hypothesis, in which the teacher's perspectives on the pupils in the classroom and on the topic or the teaching materials with which to deal with it are clarified. The research hypothesis is, in fact, a proposal for a suitable method for the pupils to deal with the topic or teaching materials. The scheme, therefore, motivates teachers to conduct a lesson with the topic or teaching materials in clear view towards the pupils, responding to their specific needs and social requirements.

Once a lesson plan is drafted, a study group meeting is held. The study group often consists of the colleagues who teach the same grade. The draft plan is carefully examined not only by the teacher him-/herself but also by the study group, focusing on their perspectives on the pupils, their interpretation of the topic or teaching materials, and the method and the approach that should be adopted. After discussion in the study group, the teacher reconsiders his/her plan and reorganizes it if necessary. While testing the plan, the teacher finalizes it to propose a hypothesis.

## 1. 2. Implementation

After the lesson plan is finalized, it is implemented to verify the hypothesis. This lesson is called "*kenkyujugyo*", and the lesson is usually open to other teachers within or from outside the school for observation. The

details of the lesson are recorded by other responsible teacher(s), and the record is a source of the discussion of a review meeting (*jugyokenkyukai*) held after the verifying lesson (*kenkyujugyo*) is implemented.

## 1. 3. Evaluation

The aspects of observation are related with the criteria of evaluation. Sasaki gives the criteria of evaluation as follows:

- How the choice was made.
- The validity of the judgement.
- The effectiveness and the meaning of the method adopted in light of pupils' development as a whole.

According to Sasaki, further specific points of evaluation are given as follows:

- Whether or not the objective of the lesson was achieved.
- How well the lesson was organized.
- How well the lesson was prepared, planned, and organized, concerning needs analysis, individual attention needs, adequate questions, etc., according to the situation of the classroom.
- How much the lesson was learner-oriented.
- How appropriately the teacher paid attention to the individual and provided pupils who are in need with individual assistance.
- How flexibly the teacher responded to pupils' reactions,

The requirements for a "good lesson" in fact emerge as a sort of agreement among the participants. The evaluation at the review meeting is more qualitative than quantitative, based on the responses of pupils to the lesson. While concerned with academic achievement, the participants focus on the following aspect

in the review meeting; whether or not the adopted approach was suitable for the pupils as Ms.Koga, a teacher at Katahira Primary School in Kawasaki City stated. All the participants consider what could be an alternative and how the lesson could be improved. A direction to improve the lesson is implied in the meeting; therefore, the evaluation has potential to lead to further improvement.

## 2. A Case Study

We have discussed the technical procedure

of *jugyokenkyu* previously. The lesson plan as an outcome of the teacher's in-depth study of the pupils and the material, however, appears in a different form in actuality (Table 2). The activities are formative, and the items contained in a lesson plan can vary by subject or by group. Teachers may choose the form that best achieves the objectives of their study. There is no single pattern or rigid format in the lesson plan; however, some common elements are identified.

This is a case of a Grade 4 Mathematics Group, one of the groups of the *Kyoiku-*

Table 2 Items in the lesson Plans

1.Line Graph	2. Square 3. Equation and Calculation	4. Reasoning	5. Square Measure	6. Function
1. Unit Title 2. The objectives of the unit – Interest, willingness, and attitude – Mathematical reasoning – Expression and skills to deal with – Knowledge and comprehension 3. The relationship with the theme – The lesson adopted a choice – The role of group discussion for developing Mathematical reasoning 4. Instruction structure 5. Today's instruction (1) Objectives (2) The flow of the lesson 6. Consideration	1. Unit Title 2. The objectives of the unit – Interest, willingness, and attitude – Mathematical reasoning – Expression and skills to deal with – Knowledge and comprehension 3. About the unite 4. The relationship with the theme The lesson adopted a choice, regarding today's lesson A merit of the ad- option of a choice The group discus- sion objectives for developing Ma- thematical reasoning 5. Instruction structure 6. Instruction of today's . lesson (1) Objectives (2) The flow of the lesson 7. Consideration 8. Reaction of the pupils afterwards	1. Unit Title 2. The objectives of the unit 3. The relationship with the theme – The lesson adopted a choice, regarding today's lesson – The role of group discussion for de- veloping Mathe- matical reasoning 4. Instruction of today's lesson 5. Consideration	1. Unit Title 2. The objectives of the unit – Interest, willingness, and attitude – Mathematical re- asoning – Expression and skills to deal with – Knowledge and comprehension 3. About the unit 4. The relationship with the theme – The lesson adopted a choice, regarding today's lesson – The role of group discussion for de- veloping Mathe- matical reasoning 5. Instruction structure 6. Instruction of today's lesson (1) Objectives (2) The flow of the lesson (3) Consideration	1. Unit Title 2. The objectives of the unite 3. About the unit 4. The relationship with the theme 5. Instruction structure 6. Instruction of today's lesson

*kenkyuin* Program the year 2000, one of the teacher re-training programs of the Tokyo Metropolitan Board of Education. The contents of their final report are as follow:

- I. Study structure
- II. Justification for the study theme
- III. Expectations for pupils
- IV. Study objectives
- V. Hypothesis
- VI. Contents
  1. Survey
  2. The definition of “choice”
  3. Individual problem-solving
  4. Pupils’ criteria for making a choice
  5. The effectiveness of group discussion within the method of “individual problem-solving by making a choice”
  6. Verifying lessons for the method of “individual problem-solving by making a choice”
  7. A model lesson adopting the choice of pupils
- VII. Cases
  1. Line graph
  2. Square
  3. Equation and calculation
  4. Reasoning
  5. Square measure
  6. Function
- VIII. Study outcomes and further problems

In light of on-going education reform aimed to eliminate an overemphasis on intellectual education and the cramming system, the study group considers how “zest for living” (*ikiru chikara*) can be dealt with and can be enhanced in Mathematics, and their consideration is reflected in their study hypothesis. The first step of the study is to

justify the study hypothesis, which is based on their analysis of pupils in the classroom and current educational requirements.

The study group also examines the aims of Mathematics Education prescribed in the course of study, identifying the following points:

- Acquiring basic and fundamental knowledge and skills of quantity and geometry.
- Enhancing the basis for creativity, such as multi-dimensional considerations and logical thinking.
- Relating Mathematics and the phenomena in daily life.
- Developing a lesson in a way that preserves the joy and fulfillment of learning.
- Enhancing the ability to find out a problem for oneself.
- Encouraging mathematical reasoning and learning activity and problem solving.

The study group begins the planning with a “situation analysis” of the pupils in one’s classroom after the group is organized in April. In May, they conducted a survey using a questionnaire in order to identify both positive and negative characteristics. Those who needed specific attention or individual assistance were also recognized in this process. They found out that in fact 11% of the pupils disliked Mathematics, and that is because of their insufficient level of acquisition of basic knowledge and skills in Mathematics through the survey. They realized that the lesson must be “fun” for pupils, particularly for those who dislike or are “not good” in Math. The study group also recognized that the pupils had the desire to improve their Math skills. The

group concluded the survey by stating that because of a lack of opportunities to adopt child-centered or problem solving approaches in their lessons, positive attitudes toward challenging to solving problems by themselves was rarely observed in students. While they reviewed the related literature and implemented try-out lessons three times total from June to July to formulate their hypothesis, based on their reviews of these lessons.

The study group proposed the following hypothesis: If the pupils are given choices for the problems they are going to work on, the pupils will be motivated and willing to work on solving them for themselves. The group also aimed at enhancing the pupils' communicative skills through presenting their strategies to solve problems in groups or class discussions. This is their view of how to realize the current curricular requirements.

The teachers in this study group adopted and adjusted the rather general standard curriculum to specific approaches to be taken in their classrooms. The statistics taken after the verifying lessons were implemented during the period between October and November show that the percentage of the pupil who liked Mathematics very much increased from 27% in May to 31% in November. Those who wished to present their strategies to solve problems and discuss these with others in the class also increased from 34% in May to 49% in November. Ms. Shimizu, a member of this study group said that she is skeptical whether the method can be helpful for improving Math skills of the pupils alone or whether it can be effective in a different grades and subjects. She, however,

said that she learned the method to conduct a study and to organize a lesson, and she appreciates this experience of in-depth study on a topic and the opportunity to have studied much of the literature.

### **3. A Study Group**

It is common among teachers in Japan a study group to be organized for by subject, topic, or grade to improve teaching skills and the quality of instruction, by sharing information, experiences, and the same interest. It is often said that the one who truly benefits from this opportunity is the one who actually implements the verifying lesson. The information and experiences are still shared within the group through the study group activities. Some of them are organized officially by the local Board of Education, and these activities are recognized as job obligations. Even though this is an administrative decision, however, it is rare to ignore teachers' individual interests and will. On the other hand, some groups are independent and rely on the voluntary work of members. In any case, the outcomes of R&D activity depend on the active involvement of members. The school in Japan is usually organized for every teacher to belong to a study group.

### **4. Teacher Motivation and the Role of the Principal**

The whole system of *jugyokenkyu* cannot stand on teachers' initiative alone. It is necessary for such activities to be institutionalized. Mr. Takagi, a former principal at Koyodai Primary School in Inagi City, Tokyo stated that the positive attitude and the active partic-



ipation of teachers are vital factors for successful school based R&D activities, and these depend on the disposition of teachers. Moreover, according to him, those factors are even more important than the leadership or administrative support of the principal, and obligatory activity rarely brings favorable outcomes. Therefore, he said, he left the final decision to the teachers despite other options that could be more urgent than the Environment Education option actually chosen.

It is in fact an important role of the principal to ensure the budget for R&D activities. In the case of Inagi City, a certain amount of the budget was secured for school based R&D activities. Koyodai enjoyed a sufficient budget in the second phase of the study, obtaining another source of budget from the Bureau of Environment, Tokyo Metropolitan Government Bureau, in addition to Inagi City funds. The principal is not even a facilitator of the R&D activity but a supportive coordinator. Other than that, the role of the principal would seem to be create an atmosphere at the school that encourages involvement in investigating their shared problem: "Environment Education of Koyodai."

### **Conclusion: The Benefits of *jugyokenkyu***

Organizing a lesson is determined by a choice of the following: the lesson form (lecture, sub-group work, or individual learning, etc.), learning processes (consisting of introduction, core development, and conclusion), learning activities (discussion, observation, survey, and work, etc.). The combination of choices in each element

consists of a lesson, which is determined by the teacher. The scheme of *jugyokenkyu* encourages the teacher to think out their justification of the choices to organize a lesson, while translating new subject objectives and current educational requirements into practice and adjusting the standard curriculum to the specific needs of a specific group.

It is hard to measure the effectiveness of the scheme for improving pupils' academic attainment or the teachers' teaching skills in short term, although unique program design might be realized by individual teachers. The scheme, however, contributes to improve the quality of teaching in groups of teachers collectively, because every participant can be supplied with a suitable method to present a topic to a specific group of children through the R&D activities in the process of *jugyokenkyu*. There are several forms of *jugyokenkyu*; however, tasks such as understanding pupils and their surroundings and studying current educational requirements in addition to topics or teaching materials are commonly observed.

Once the developed scheme is institutionalized among teachers in practice, it can be something more than learning from each other. The scheme of *jugyokenkyu* in one respect improves the quality of teaching because of its function to encourage the teachers toward in-depth preparation, and in another respect, it can serve as pilot studies for curriculum development. The scheme can facilitate the introduction of a new topic in school curriculum (*kyozaika*) like in the case where Koyodai Primary School dealt

with Environment Education in the early 90s. The scheme functions as a driving force for curriculum development as well as curriculum localization, facilitating active participation of the pupils in a lesson and stimulating the awareness of teachers to respond to new educational requirements and specific needs of children with different backgrounds.

It is essential to maintain the professionalism of teachers properly in terms of the quality basic education to realize learner-centered approach or child-friendly school in order to promote Education for All as it was pointed out in the Dakar Conference in 2000. It is as important to maintain a climate of the autonomy for teachers to promote such school based R&D activities as it is to prepare teachers to institutionalize the scheme in their teaching careers, starting from a pre-service training. Teacher formation programs are to be reexamined, considering that such curriculum localization schemes require highly analytical thinking and dispositions on the part of teachers.

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