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## Characteristics of Industrial Learning in Japanese Elementary School Social Studies: In the case of the fifth grade "Showdown, Which Manufacturing Show!"

Katsuhisa Shirai<sup>1)</sup>

1) Department of Child Development, Aichi Toho University, Japan

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### Abstrak

Tujuan dari penelitian ini adalah untuk mengklarifikasi karakteristik pembelajaran industri dalam studi sosial sekolah dasar Jepang dan untuk membandingkan sudut pandang tentang studi sosial di Indonesia. Tiga poin berikut telah menjadi jelas sebagai hasil dari penelitian ini, sebagai bagian dari pembelajaran industri dalam studi sosial sekolah dasar di Jepang, di tingkat praktik kelas. Pertama, dalam pembelajaran industri dalam studi sosial sekolah dasar di Jepang, desain unit dilakukan dengan menggunakan pabrik di daerah tersebut sebagai bahan pengajaran. Kedua, pelajaran dilakukan melalui tur pabrik dari perspektif peningkatan kesadaran akan upaya mereka yang bekerja di pabrik. Ketiga, proses pembelajaran yang melibatkan peserta didik dikembangkan, seperti penelitian, kegiatan kunjungan, dan diskusi yang berpusat pada kesadaran masalah anak-anak. Tiga poin di atas dipertimbangkan untuk membuat saran untuk peningkatan pembelajaran industri dalam studi sosial sekolah dasar di Indonesia.

**Kata kunci:** studi sosial, pembelajaran industri,

### Abstract

*The purpose of this research is to clarify the characteristics of industrial learning in Japanese elementary school social studies and to compare viewpoints on social studies in Indonesia. The following three points have become clear as a result of this research, as part of industrial learning in elementary school social studies in Japan, at the class practice level. First, in industrial learning in elementary school social studies in Japan, a unit design was conducted using factories in the area as teaching materials. Second, lessons were conducted through factory tours from the perspective of increasing awareness of the efforts of those working in factories. Third, learning processes involving learners were developed, such as research, visit activities, and discussions centered on children's problem awareness. The above three points are considered in order to make suggestions for the improvement of industrial learning in the social studies of elementary schools in Indonesia.*

**Keywords:** Map Media, Analytical Ability, worksheet

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\*Corresponding author:

E-mail: [shirai.katsuhisa@aichi-toho.ac.jp](mailto:shirai.katsuhisa@aichi-toho.ac.jp)

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## **INTRODUCTION**

The purpose of this research is to clarify the characteristics of industrial learning in Japanese elementary school social studies and to show comparative viewpoints on social studies in Indonesia. Nasution (2016) argues that a new curriculum in Indonesia, designed in 2013, aims to foster ethical values and scientific thinking in social studies. In this paper, by clarifying the characteristics of social studies in Japan, I aim to allow for a comparison with social studies in Indonesia. Generally, it can be said that Japan's economic development has been supported by industrial learning in Japanese elementary school social studies. By identifying the characteristics of industrial learning in elementary school social studies in Japan, it is possible to compare them to industrial learning in Indonesia. Additionally, this investigation may offer insights into the possibility of economic development in Indonesia through industrial learning in social studies.

Therefore, in this paper, I will use "Showdown, which manufacturing show!" as a case study in order to clarify the characteristics of industrial learning in Japanese elementary school social studies at the practical level in class. I have worked on this project myself during fifth grade in school, in 2003. Thereby I will also make suggestions for the improvement of industrial learning in social studies in elementary schools in Indonesia. When choosing the subject, I thought whether it would be possible to construct industrial learning in such a way that it is reflective of the way of life, and the ideas and efforts of people working in the area. Thus, the actual circumstances will serve as teaching materials. Specifically, I focused on the Fujibo Kozakai factory in the school district.

The Fujibo Kozakai Factory was completed in 1951 and has supported the industries of Kozakai Town for several years during the postwar economic growth. Currently, it mainly produces synthetic fibers called "spandex," which the stretchable part of clothing is made of. The factory may be considered a typical factory in a school district. My research aims to enable teachers and children to deepen their knowledge and improve their learning methods, so that improvements can be designed and put into practice.

Children in class can actively assert their thoughts. Above all, they are motivated to participate in experiential activities and they confidently pursue activities that allow them to understand what they have examined. In an ideal scenario every child wants to become a "self-confident child" through being part of a class that has learned how to pursue problems by themselves.

However, there are few children who are aware of the fact that the things around them are actually produced by other members of society. May this be the case because today children can easily obtain food, clothes, transportation, and information? I aim to increase the children's awareness of societal issues and to persistently investigate the relationship between themselves and the things around them. I propose a design of industrial learning that encourages teachers and children to continuously carry out experiential activities and activities involving people.

Table 1. Child image to wish in research

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|---|
| <ul style="list-style-type: none"><li>• Child A who can pursue the relationship between itself and familiar things, and who has strong problem awareness.</li><li>• Child A who can aspire to deepen their own knowledge and understanding while interacting with people.</li><li>• Child A interested in issues of industrial production in Japan.</li></ul> |
|---|

I think that it is necessary to inspire children to want to learn independently. Moreover, general circumstance and past experiences of the child have to be taken into consideration. In order to achieve this, the first step is to focus on teaching materials that are familiar to the children, and help them cherish experiences and relationships with friends, family, and people who actually work in the factory. We set the following hypotheses.

Table 2. Research Hypotheses

1. If you take industrial products that you usually look at and use casually as concrete objects in class and allow children to formulate their own questions about them you will be able to engage in learning ambitiously.
2. In order to get in touch with the interests of people involved in industrial production visit the factory and conduct interviews, thus setting up a place for interacting with different people allowing the children to see how various people in society conduct their work
3. By providing effective teacher support based on the study plan and its practice, it is possible to think about problems of industrial production with actual working people in mind.

## METHOD

In order to advance research based on the above hypotheses, it is necessary to envision a social studies unit supported by the children's own awareness of problems. For this purpose, we planned to review the unit composition, learning method, and teaching materials, and created the following schemas.

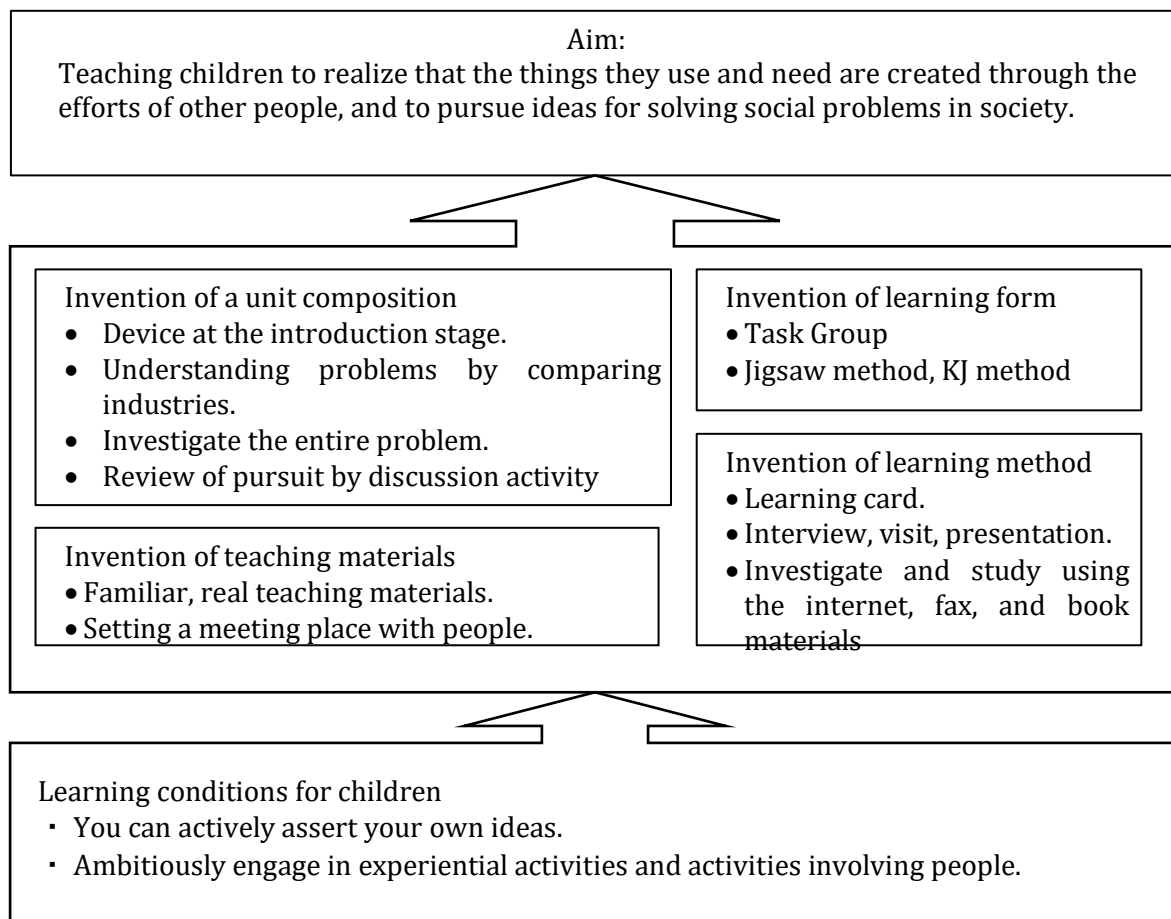


Figure 1. Research Concept

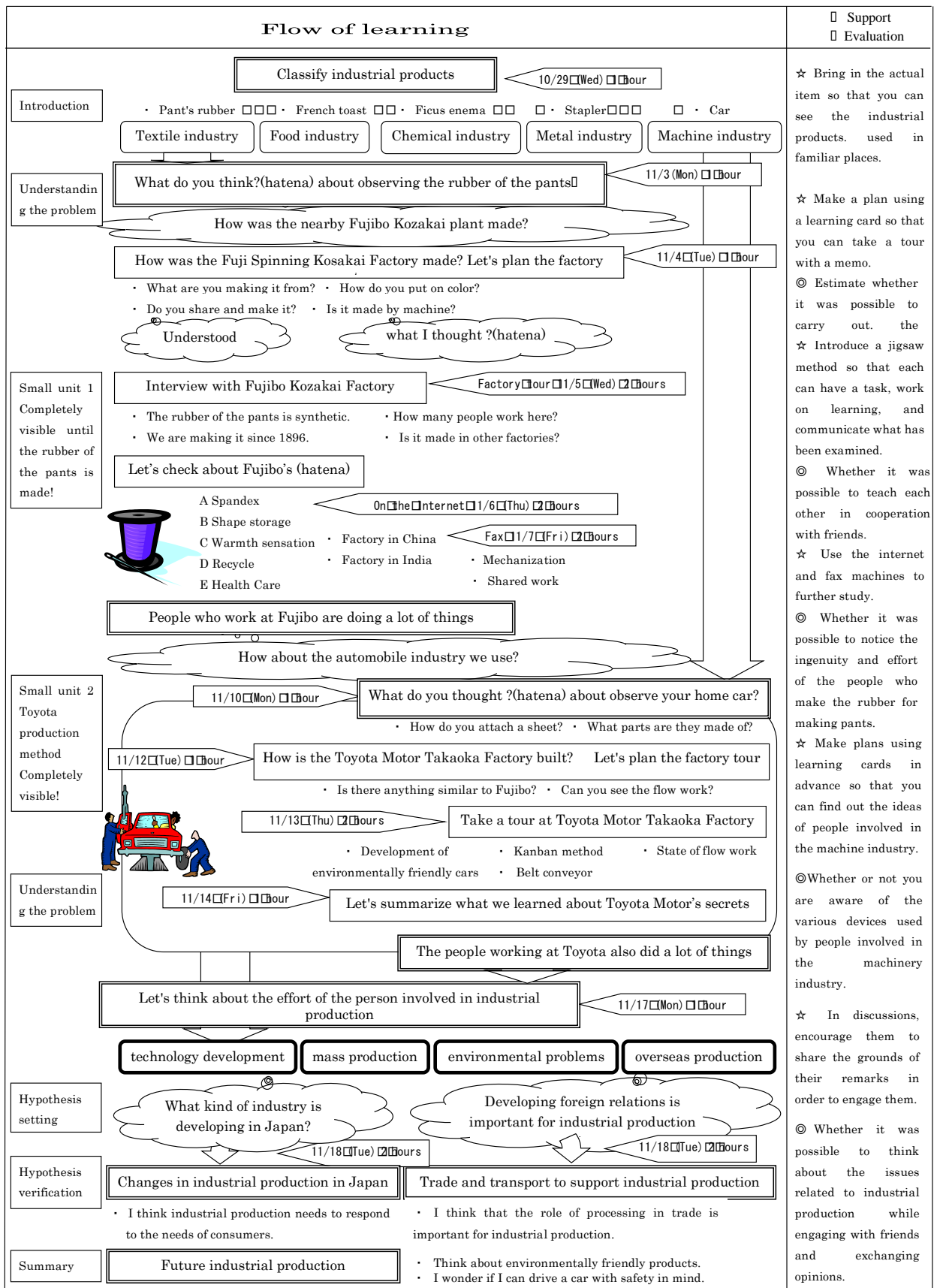


Figure 2. Unit Plan 11/10

In this research, we specified the extracted child A with a specific wish, analyzed the situation of learning from the observation memo of the teacher and the class record, and decided to verify the validity of the hypotheses.

Table 3. Wish for child A before practice

She moved here from Toyohashi in April this year. She is a hard-working child. I've been living in Malaysia because of my mother's work and sometimes I take a one-sided view of working in terms of earning money. At the same time, this view of the situation may be selfish.

Therefore, I would like you to think about the people around you, especially those who are involved in industrial production work while devising a problem solution. In addition, I hope that you want to work on something you are interested in through the unit, grasp things carefully, and learn to make good judgements and take action accordingly.

## RESULT AND DISCUSSION

### *Small unit 1 "Find out at the Fujibo Kozakai factory until the pants are made by!"*

#### *Classification of industrial products*

First of all, we carried out a real-time evaluation so that we could understand how industrial products were used in places familiar to children. The first question, Hint 1 "food" "I do not know", Hint 2 "teacher's breakfast" "Gyudon?"

During the evaluation the children became interested in the origin of familiar industrial products. Specifically, we inquired about the following items: Pants (textile industry), French toast (food industry), fig enema (chemical industry), stapler (metal industry), automobile (machine industry). During the preparations for the evaluation, it seemed that the children also noticed that there were a lot of industrial products around them.

In the last quiz, I showed them the pants that I had borrowed from the Fujibo Kozakai Factory. The children were impressed by the example and led them to ask, "What is this industrial equivalent?" to which some responded, "I think it is made." In the study, each of the six industrial sectors listed in the textbook was organized into categories and classified.

I continued to bring with me the actual products and show the children several rubber pants that I had borrowed from the Fujibo Kozakai Factory. They are made of a synthetic fiber, which is in turn made from petroleum and spandex. Upon touching the synthetic product that expands and contracts like rubber, children raised questions such as "What is this made of?" and "How is it colored?"

Table 4. Lesson Record

Teacher: Have you ever wondered about the rubbery feel of these pants?

B: What are they made from?

C: I have heard of it, isn't it from a rubber tree?

E: I think that it is from a silkworm thread.

A: How are they colored?

D: I think they are sharing

E: Is it made by a machine?

(Omitted)

Teacher: This rubber is actually what the teacher borrowed from the Fujibo Kozakai Factory.

A: I want to go to the factory tour.

(Lesson Record 10/31)

As I did not explain details other than the fact that the teacher collected the rubber from the pants, which I had borrowed from Fujibo, the children said that, "I'm sure it's from a rubber tree. I have heard that." And while awareness of the production process rose, A suggested that "I want to go to visit". A: I think that the interest in going to visit the factory spread to the other children.

***We will estimate the FUJIBO Kozakai Factory's production process***

Before going to Fujibo's Kozakai Factory, I used a study card to write down what I expect to learn in regard to each of the presentations and interviews I had had in the previous steps of my investigation. While there are a lot of children who are putting forth the idea of "Are you going to do something?", child A seemed to focus on the work process. In addition, some of the children who had observed the worker, said "What kind of machine are you working on?" Following the factory visit the teacher helped the children answer their questions and prepared a report card.

Working at Fujibo Kozakai factory can be dangerous because it involves chemicals and heavy machinery. Our tour mainly consisted of explanations and interviews. The tour helped answer the children's questions and the guide's explanation addressed their hypotheses. Many children were surprised to hear that the rubber of the pants is synthetic fiber and made of oil, and that the factory had been making fibers since 1896.

The children asked many questions about the rubber of the pants, as there was much concern about what the rubber of the pants was made of. Child A was interested in the question "How to color the pants?" and the factory staff confirmed that each step of the production process is shared between departments.

During the visit I was allowed to touch various fibers such as the hair of a baby that changes color depending on temperature, a fiber that changes shape depending on temperature. The children were very interested in the factory and got more curious about the many different products. As we were not able to visit the inside of the factory, more questions arose, e.g. "How many people actually work here?" and "Do you make the same thing in other factories?"

I continued to bring with me the actual products and show the children several rubber pants that I had borrowed from the Fujibo Kozakai Factory. They are made of a synthetic fiber, which is in turn made from petroleum and spandex. Upon touching the synthetic product that expands and contracts like rubber, children raised questions such as "What is this made of?" and "How is it colored?"

Table 6. Lesson Record

Teacher: Have you ever wondered about the rubbery feel of these pants? B: What are they made from? C: I have heard of it, isn't it from a rubber tree? E: I think that it is from a silkworm thread. A: How are they colored? D: I think they are sharing E : Is it made by a machine? (Omitted) Teacher: This rubber is actually what the teacher borrowed from the Fujibo Kozakai Factory. A: I want to go to the factory tour. <p style="text-align: right;">(Lesson Record 10/31)</p>
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***Interview at the Fujibo Kozakai factory***

Working at Fujibo Kozakai factory can be dangerous because it involves chemicals and heavy machinery. Our tour mainly consisted of explanations and interviews. The tour helped answer the children's questions and the guide's explanation addressed their hypotheses. Many children were surprised to hear that the rubber of the pants is synthetic fiber and made of oil, and that the factory had been making fibers since 1896.

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Table 7. Interview Result

B: What is the rubber of pants made of? F: It's from oil. C: Eh! D: Do you not use natural fibers? F: I do not make it. The natural rubber fiber used by everyone here is made from the sap of rubber trees available in Malaysia and Indonesia. E: Are other textile companies making these products? F: Spandex is made only by our company. (Omitted) A: How is Spandex colored? F: The Kozakai Factory has various departments, and people in the coloring department share the stains from chemicals. We work with other factories to finish the product. (Interview with Fujibo (Excerpt) 11/5)
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In order to establish connections between these questions after the factory tour, we provided teacher support to write a reflection on what we understood and what we thought was new to us.

***New findings following the Fujibo Kozakai Factory tour***

In order to address their questions, the children adopted a jigsaw method to teach each other. In this methodological learning activity the children were divided into groups according to the products they wanted to learn about before returning to their daily lives and exchanging the findings of what they had examined. One group took spandex, shape memory fiber, warm-feeling fiber, recycled fiber, and health fiber from the products that the children wanted to learn about and conducted research using the internet and books as materials. One child in the group investigating health fibers was able to learn about a fiber called "kitopority" by using the internet.

I noticed that the examination learning card I had provided helped answer some of the children's questions.

Regarding questions that could not be answered by using the internet or any available literature, we decided to fax the Fujibo Kozakai factory and ask them if there is a similar plant in China and India: "Do other plants produce the same product?" He told me that the production cost was low and general products were made there too. I explained this to the children and impressed with overseas production.

Among them, some children, such as child B, asked their parents who actually worked at Fujibo, "What kind of work is your mother doing?"

When I asked, "What is your mother's job?" He told me, "My mother is making car parts." (From Child B's Diary 11/10)

The child B seemed to be able to know that people working at the Fujibo Kozakai Factory are devising and making efforts to solve the problems, not a few.

### ***Invention of worker of Kozakai factory***

Using the KJ method, we can form categories so that the children can teach each other what they have learned so far, and communicate it by asking each other further questions. In this activity, A was very proud of what he could teach the other children. I think that communicating his thoughts to other children in a clear way and having other children say "thank you" and reacting in a joyful manner might have led to an increase in his confidence.

Table 8. Interview Result

Teacher: Why are you developing products in various industries?
A: To earn money
C: I think this is to sell new products, so that the company does not collapse.
D: To cherish nature and make things environmentally friendly.
E: To protect the forest and prevent the exhaust gas from being emitted.
F children: For example, they are developing cars that do not use oil, but rather change to making eco-cars. (Read the material)
G: I think that it is for everyone to make things easier to use.
H: I think it's because I want people who use products to use good products. For example, spandex.
I: I would like to sell more convenient ones now, and want everyone who is more convenient.
Teacher: Well, what kind of products do you buy?
D: They fulfill many functions.
J: I take care of my safety.
A: I thought of listening to other people's opinions, but in addition to things that are convenient and easy to use, there may be things that place importance on the environment.



(1) Target

- Noticing that Fujibo and Toyota's factories are developing various new products, you can think about the development of products in industrial production while exchanging opinions with your friends.

(2) Preparation <Children> Learning Card Social Studies Note <Teacher> Board Card

(3) Expansion

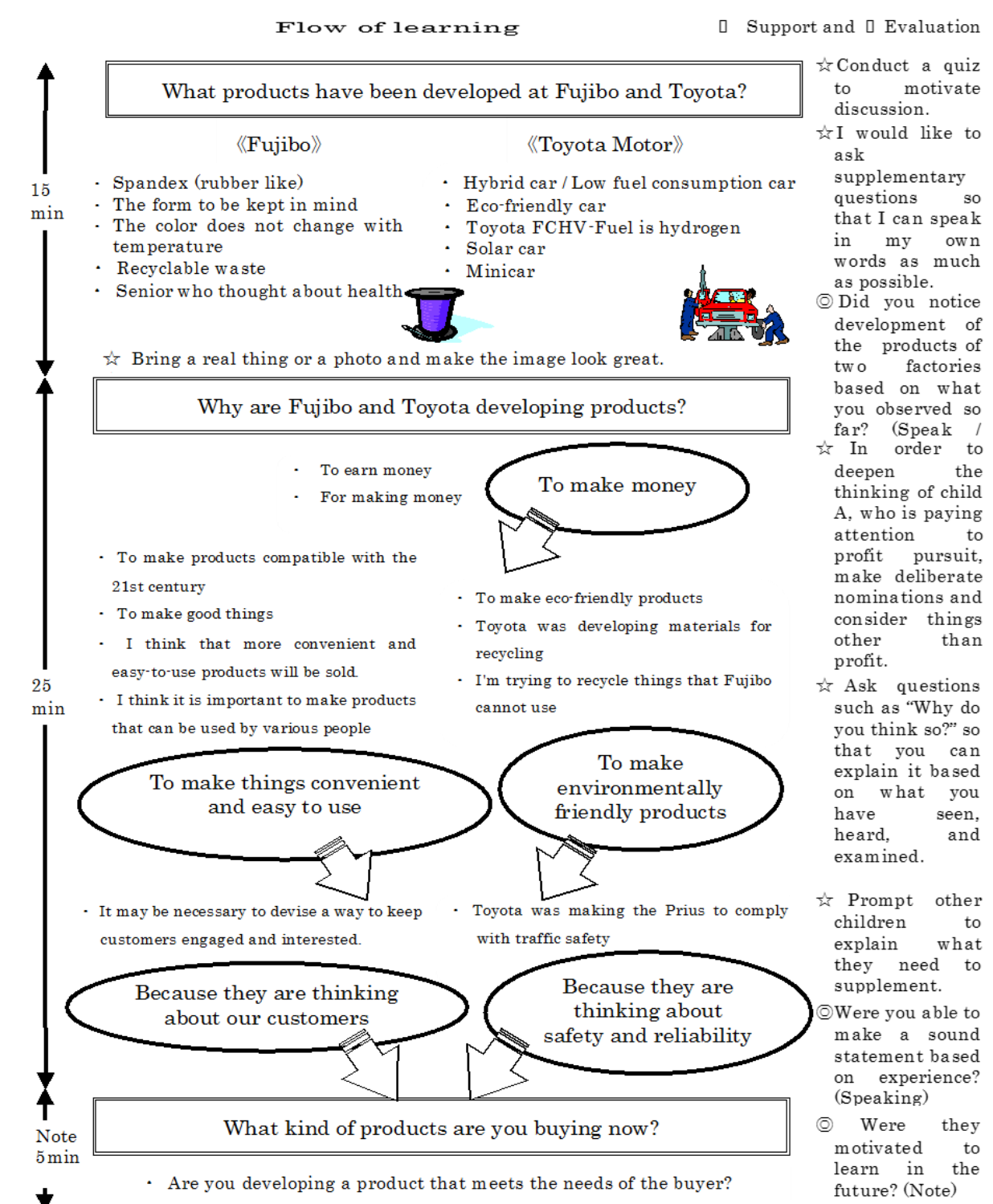


Figure 3. Unit Plans 2

## Small Unit 2 "All the way in the Toyota Takaoka Plant until the car is made!"

### Observe the car in your house and explain what you think of it "(hatena)"

Every year in the fifth grade we go to the Toyota Motor Takaoka Factory for extracurricular study. Since there is an overlap of what we learned from visiting the automobile industry and the Fujibo Kozakai Factory, and we can see similar impressions and ideas arising in the children, I would like to examine the findings further. In learning of the automobile industry, as in the textile industry, I started by observing the cars in my own home town. Any child observing the car in his or her own home will notice that the car is made from various parts. Following the factory visit the child can consider how it was made, building on the child's prior interest in industrial production.

Child A understands from the Toyota car factory tour card that he could go about the tour from various viewpoints. By visiting the two plants, Fujibo Kozakai Plant and Toyota Motor Takaoka Plant, it can be said that it is possible to think about industrial production from a wide range of positions. After learning about the textile industry and the automobile industry, the children discussed ideas concerning workers in common industrial production. "Why do various industries develop products? To make money."

I would like to pay attention to the fact that, from the initial idea of "for earning money," child A offered his own opinion while incorporating the ideas of friends. As I noticed in the notes on the learning card, there is a factor for the working people who explore the environment, convenience, safety, etc. in the development of new products. It is their will. Figure 1 is a compilation of child A based on what has been learned so far. It concerns what child A thought about the car in the future.



Figure 4. The old days of car, now and in the future

Certainly, this may be a childlike view, but it seems to be meaningful that it has been conceived while sympathizing with the position of the working people and their safety as well as

environmental consideration. I expect that children with such varied insight will be able to think and judge situations from various different standpoints in daily life from now on.

### **Research results**

#### *About hypothesis 1*

If you take industrial products that you usually look at and use casually as concrete objects in class and let children form questions about them, you will be able to engage in learning ambitiously. It is thought that picking up and engaging with the rubber of the pants used for children while learning about industrial production and the examination of their families' own car increased the children's interest in industrial learning. In addition, the fact that the local factories were treated as teaching materials was also considered to be effective means well suited for achieving good results. I would like to continue developing social studies teaching materials from the perspective of such children in the future.

#### *About hypothesis 2*

In order to get in touch with the wishes of people involved in industrial production, we visited the factory to conduct interviews and set up places where we interact with people, in order to witness that various people are working in society. At the Fujibo Kozakai factory we met children's parents working there, who were helpful in building a relationship with them to pursue individual research. The fact that children want to return to the factory and recognize the importance of being involved with people may also be mentioned as a result of this practice.

#### *About hypothesis 3*

By providing effective teacher support such as advice on the study trip, it is possible to think about the problems of industrial production with prospects and desires, and it is possible for the children to share their thoughts with each other. As I found in the figure of learning of child A, I think that I could think about industrial production systematically by organizing the questions with teacher support. I was able to deepen my understanding of issues common to Japanese industrial production. In order to emphasize the relationship with friends in the discussion, the fact that I was conscious of connecting and speaking with others has also been helpful in gaining a better understanding of the topic.

At present, the Japanese textile industry is in a deep recession due to the decline in international competitiveness. Children are also sensitive to problems of local industries, for example saying "My father's job is gone and I may move" and "There is also a loss of factory land." Based on the realities of such issues, the issues in this practice that come to light may be summarized in the following three points.

I felt the need for further development of teaching materials from the perspective of the child, since the subject matter got more advanced as the textile industry and the automobile industry were studied together and the topic appeared to be difficult for the child. There is a weak point of view from the region to the industry in Japan as a whole, and in the future in the study of "trade and transport supporting industrial production" it is important to link what children have investigated with the perception of Japanese industry. Reflecting on the fact that the industrial development was rapid, I felt the importance of establishing a long-term perspective supported by persistent awareness of problems and planning a dynamic unit.

### **CONCLUSION**

As a result of this research the following three points have become clear concerning characteristics of industrial learning in elementary school social studies in Japan at the class practice level. First, in industrial learning in elementary school social studies in Japan, a unit design was conducted using factories in the area as teaching materials. Second, in industrial learning in elementary school social studies in Japan, class composition was conducted with the

aim of increasing awareness of the ideas and efforts of workers through factory tours. Third, in industrial learning in elementary school social studies in Japan, there were developments of learning that was dominated by the learners themselves, such as research, visit activities, and discussions centered on children's problem awareness. The above three points are considered to give suggestions to how industrial learning in the social studies in elementary schools in Indonesia can be designed

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