APEC-UNESCO-Tsukuba International Conference XII（26 Feb. 2017）

Lesson Study as an Effective Element for Curriculum Implementation and Improvement: Competency-based curriculum into classroom

名古屋大学
NAGOYA UNIVERSITY

Hiroyuki Kuno
Nagoya University, Japan

WALS conference as a place for communication and knowledge exchange

[Ref. https://www.youtube.com/watch?v=vPuBrjn2H-A&feature=youtu.be]

Introduction

Aim of this presentation: to introduce latest curriculum reform in Japan and to understand how Lesson Study support teachers to be aware of this new curriculum paradigm and deliver it into classroom by skills teachers.

"The 21st Century is the age of the knowledge-based society in which new knowledge, information and technology grow in value in every social field including politics, economics and culture."

(Preface, national curriculum, MEXT 2008)

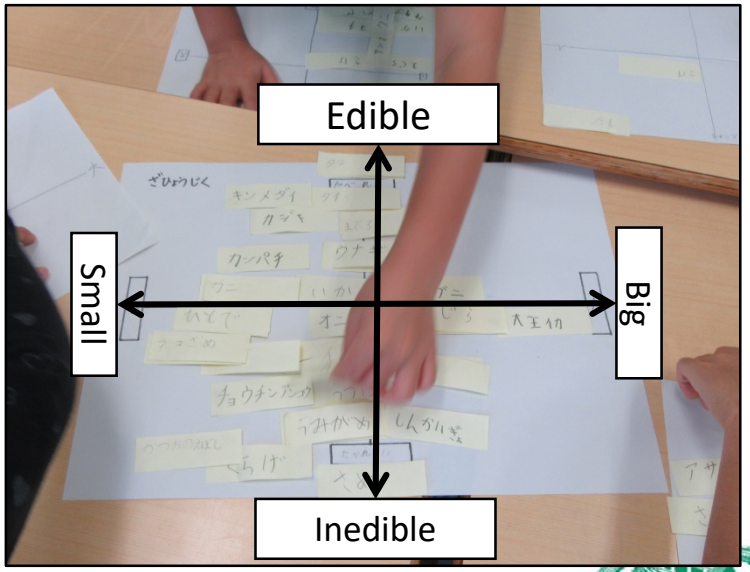
When children of present and future generations are becoming adults, our country is expected to enter an age of challenges. (…)

(W)e foresee an age that have undergone prominent changes in social structure and employment situation. This era is reckoned to be a time full of unpredictable changes.

(Preface, national curriculum, MEXT 2017)

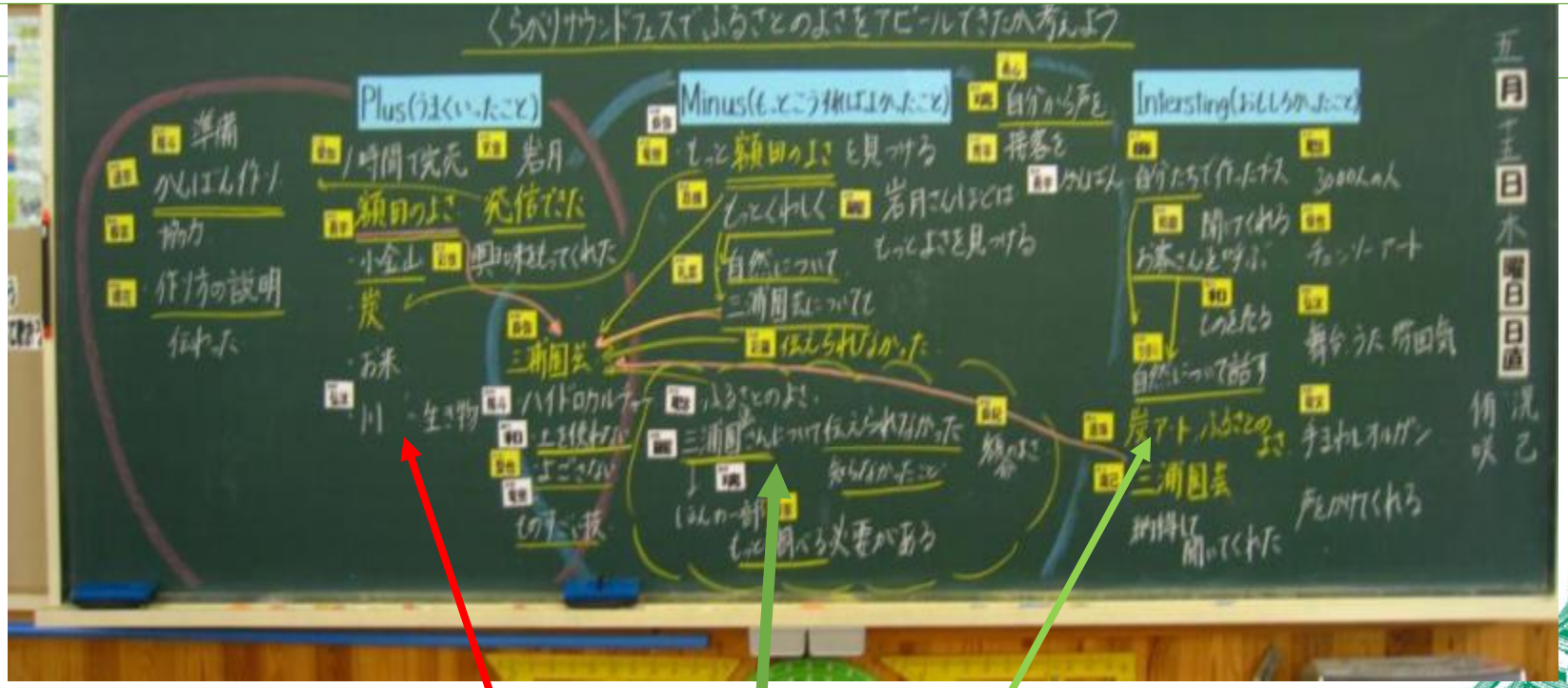
1. Change of learning paradigm in 2010's

Case 2: To find different kinds of fish, and to classify them according to characteristics on a "concept map" (Grade 2)



Eel, puffer fish, angler tuna, squid, crab, starfish, whale, deep-sea fish, shark, bluefish, salmon, etc.

Case 3: Task: "To assess whether or not our aim to promote to the visitors the uniqueness of our town at the music festival, is successfully achieved" (Grade 4, Integrated Studies)



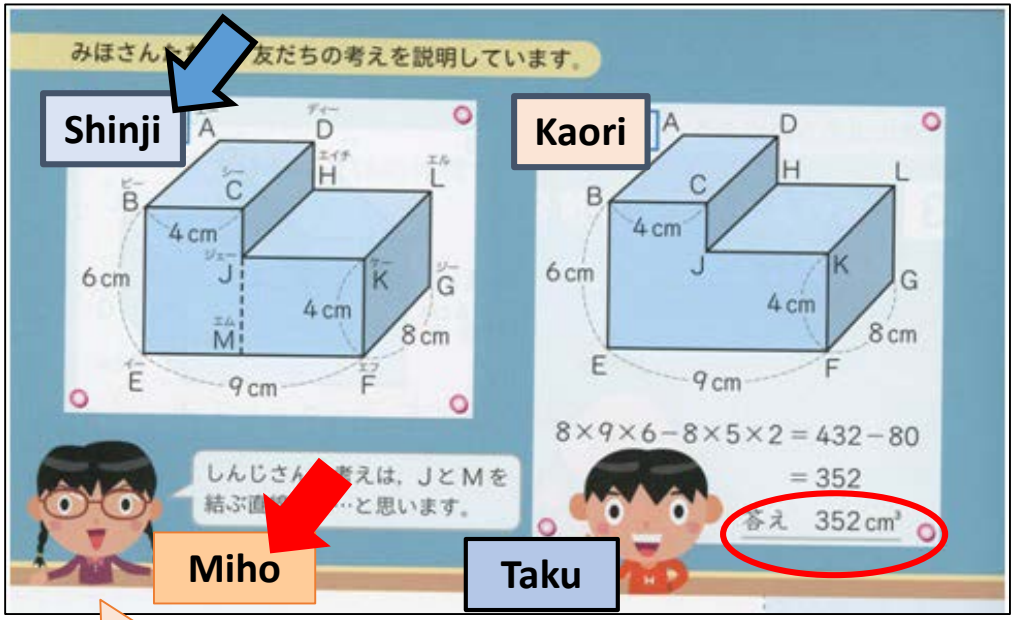
"Thinking tool method" To enhance cognitive abilities : Judgment (Evaluation)

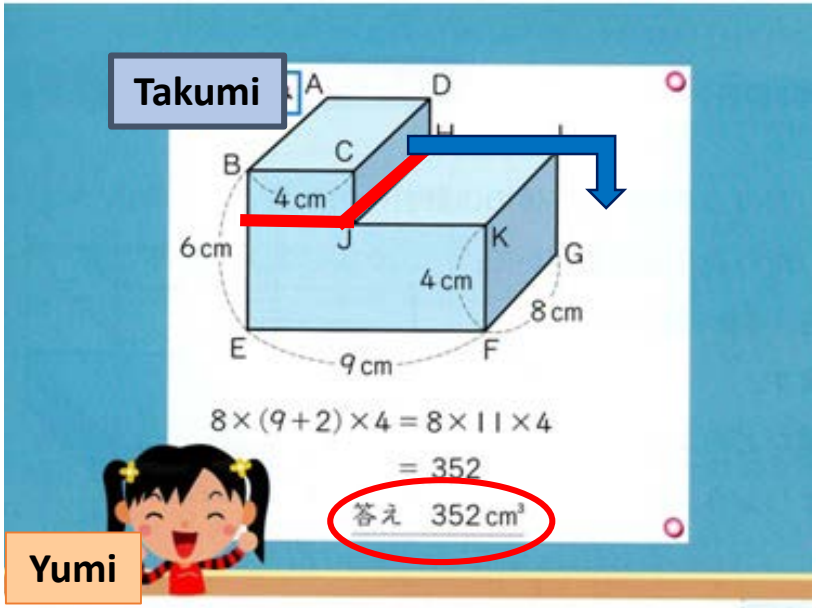
Plus (P)	Minus (M)	Interesting (I)

"PMI-Chart" as a method:
- Multi-perspectives
- Rating
- Interpretation / explanation
- Decision making

Case 4: Problem solving process in mathematics book : Perspective adoption and individualization (Grade 5, Math)

(Topic: Calculate volume in cubic centimetre)





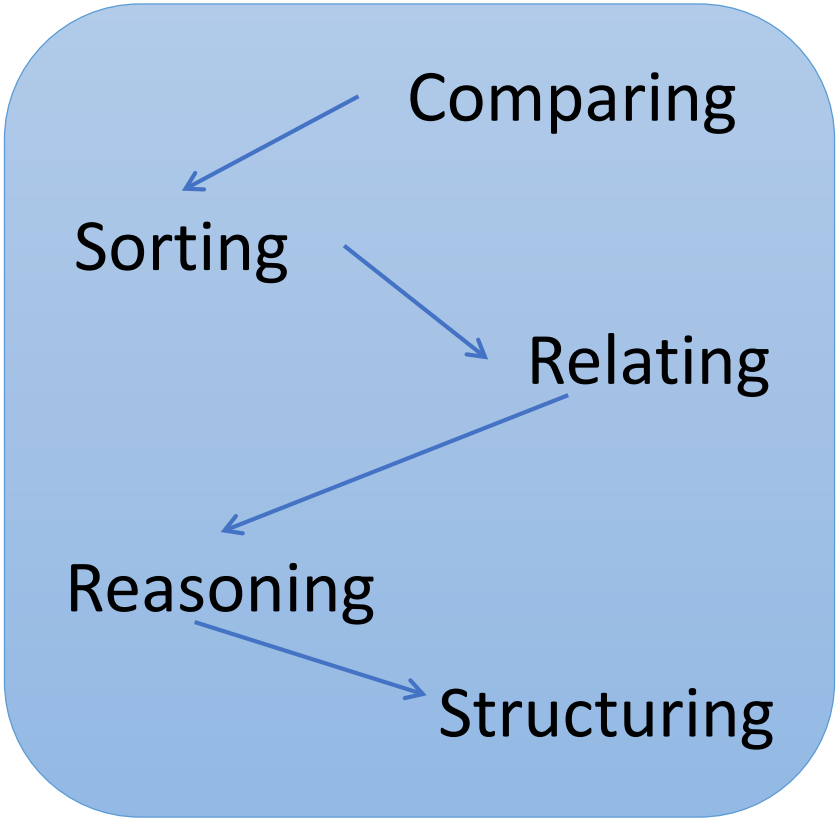
I think Shinji has divided between J and M, then ...

Teacher requested Miho to explain Shinji's answer in her own words.

[Ref.: Tokyo Shoseki, 2012]

Competency Model

Introducing phases of evaluation, "Decision making and Expression" in the Lesson Unit



Conceptual Framework of New National Curriculum (2017)

1) **Applicable Knowledge & Skills**
"What we need to know + to do"

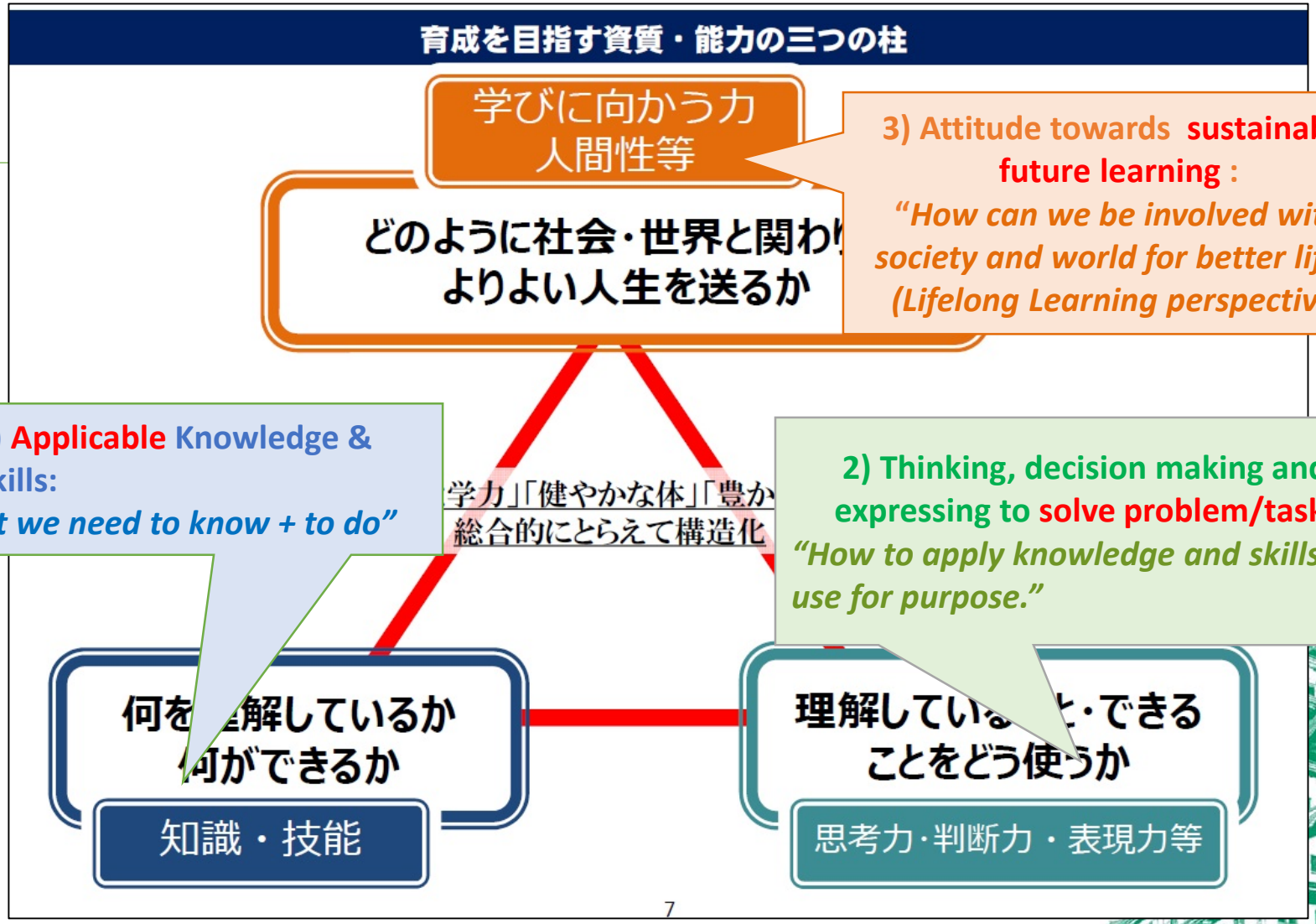
2) **Thinking, decision making and expressing to solve problem/task**
"How to use knowledge & skills"

3) **Attitude towards sustainable future learning (Lifelong Learning)**
"How can we to relate with society and world for better life"

[Ref.: Central Education Committee 2016]

2. Curriculum Reform in 2017
Competency-based national curriculum

2.1 Core components of competency framework (Triangle model)



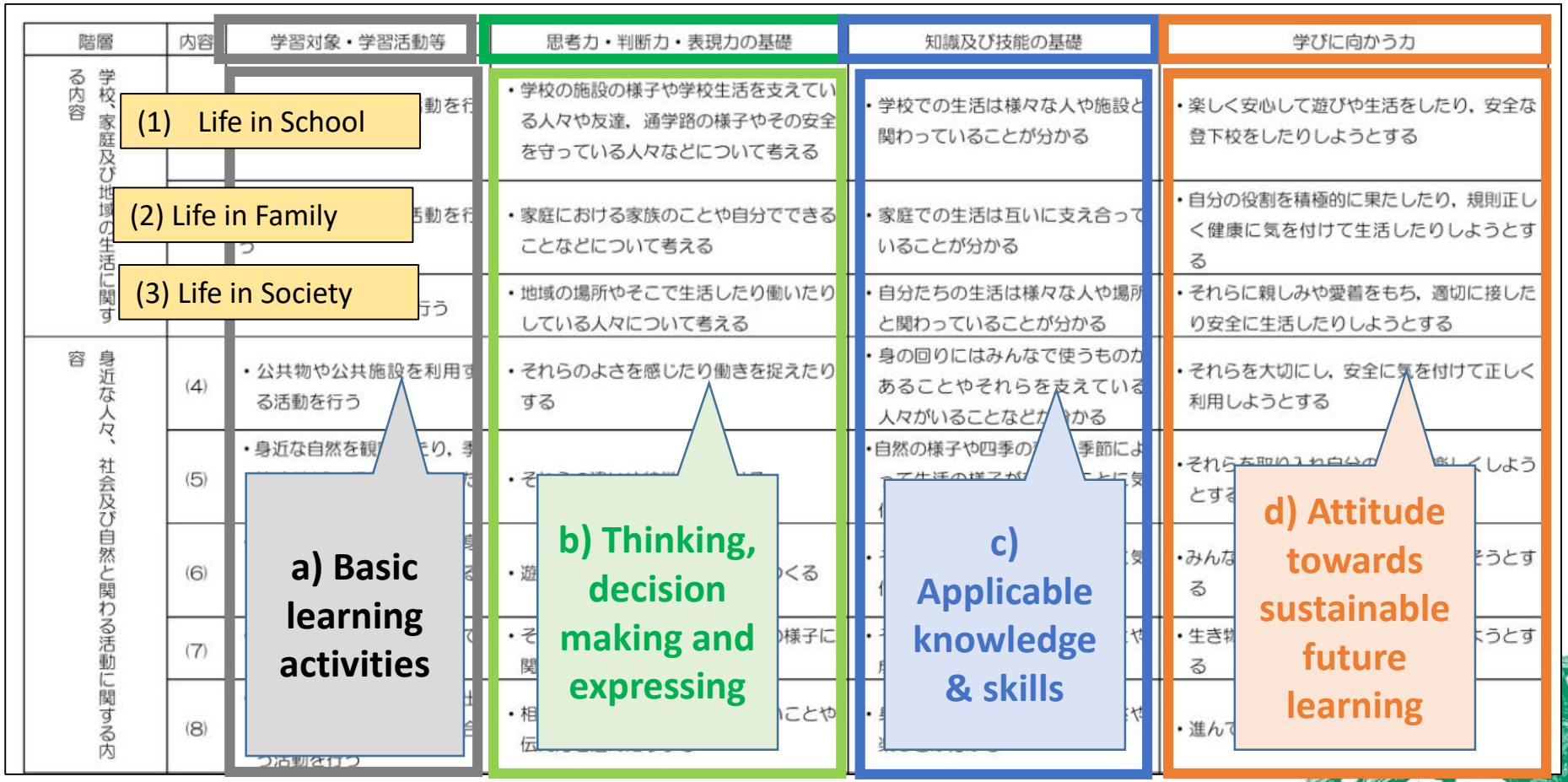
3) Attitude towards **sustainable future learning** :
"How can we be involved with society and world for better life."
(Lifelong Learning perspective)

1) 1) **Applicable** Knowledge & Skills:
"What we need to know + to do"

2) Thinking, decision making and expressing to **solve problem/task:**
"How to apply knowledge and skills to use for purpose."

［Res.：MEXT, 2016.12.21］

2.2 Competency framework subject "*Living Environmental Studies (LES)*" (2017)



2.2 Competency structure in National Curriculum:

"Living Environmental Studies (LES)" (2017)

1. Process-related competences (common goal)

The subject *LES* aims at fostering competencies and abilities below which are developed by concrete activities and experiences during the lessons.

Pupils are able:

1) [Applicable knowledge & skills]

- To experience characteristics and values about themselves, people, society and nature in their environment through active processes;
- to find mutual meaning among their circumstances as well as relevance with their own;
- to develop essential skill to participate in society.

Cont.

2) **[Thinking, decision making and expressing]**

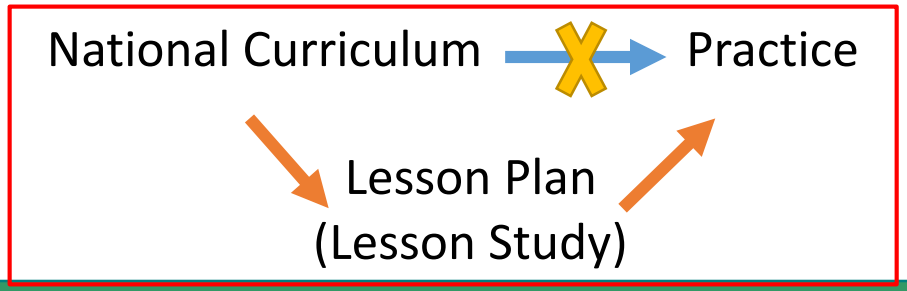
- To be aware of the meaning of the people, the society and the nature of their environment;
- to consider about themselves and their life and
- to express themselves and own thoughts.

3) **[Attitude towards future learning]**

- To work out facts about the people, the society and the nature of their environment independently;
- to study passionately and confidently;
- to continue to improve their life.

2.3 Lesson Study Example (Grade 2: year 8, LES)

Let us go to Expedition to meet and investigate our town!



2.4 Competencies in a Lesson Plan for Lesson Study (2009): according to three competency structure

(3) Unit Goals

The pupils are able:

1) To find the joy encountering their environment, and the values of themselves and their friends by the expeditions as well as presentations.
→**[Applicable knowledge & skills]**

2) To plan expeditions carefully; to present facts which they have found out from the expeditions.
→ **[Thinking, decision making and expressing]**

3) To try to explore their environment with all five senses; to find places or objects with special values for themselves in town.
→**[Attitude towards future learning]**

Cont.

(6) Assessment

1) The pupils still want to take a close look at their environment and are able to report on their experiences in detail. / They are able to listen to their friends' stories and make questions.
[by observation of pupils' mumble and face expression at stage 3+4 in lesson plan]

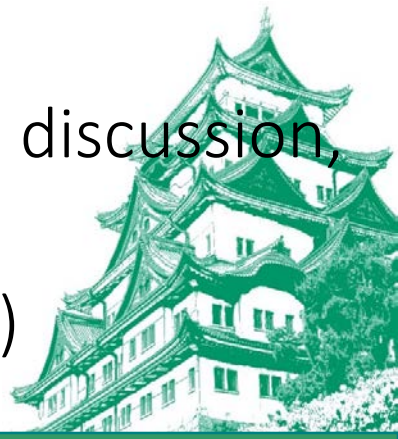
2) The pupils are able to present in a "listener-friendly" way e.g. by giving concrete examples or by using a good body language.
[by observation pupil at stage 3 in lesson plan]

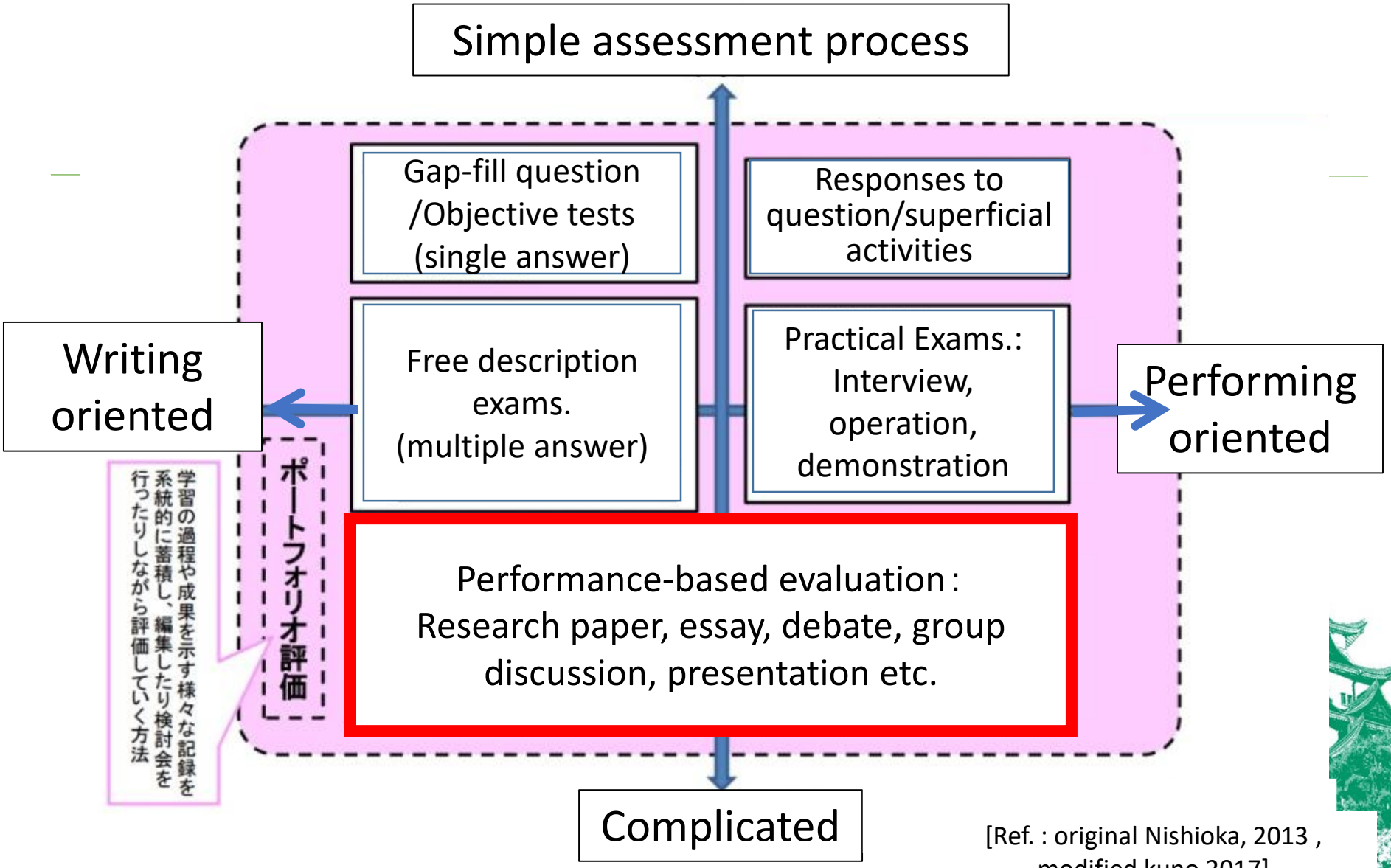
3) The pupils are able to tell stories and experiences of their expedition vividly and in their own words. /They are able to listen to the other presentations and make appropriate questions.
[by observation of pupils' expression and mumble at stage 3+4 in lesson plan]

2.5 Principles of Assessment

- Three aspects of assessment (same as competency):
  - A) Knowledge & Skills,
  - B) Evaluating, decision making and expressing
  - C) Attitude towards future learning
- multiple process are required to assess the three aspects above that are combined different assessment methods such as Portfolio-based evaluation, Performance-based evaluation
- Evaluating essay, report, presentation, group discussion, project-based works etc.

⇒ Designing Rubrics by assessor (teacher)

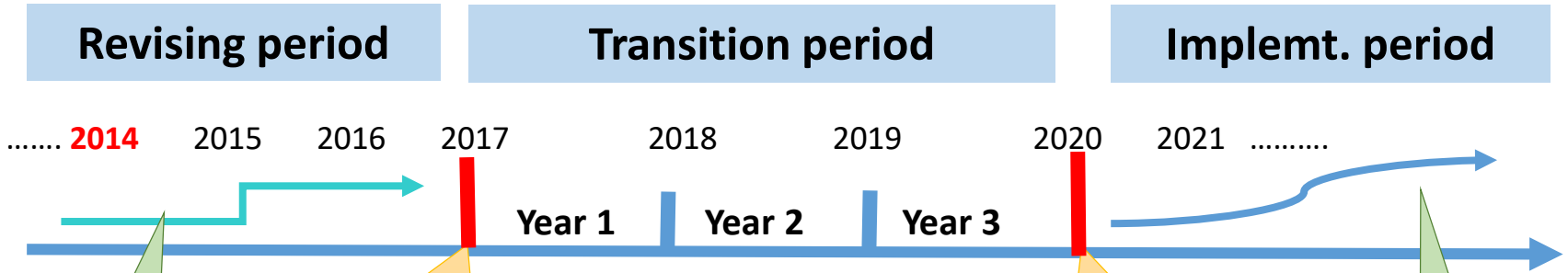




[Ref. : original Nishioka, 2013 , modified kuno 2017]

3. Systematizing of Curriculum Implementation & Curriculum Improvement though Lesson Study

3.1 Curriculum revision and implementation in time line



New curriculum **Fixed** (officially announced)

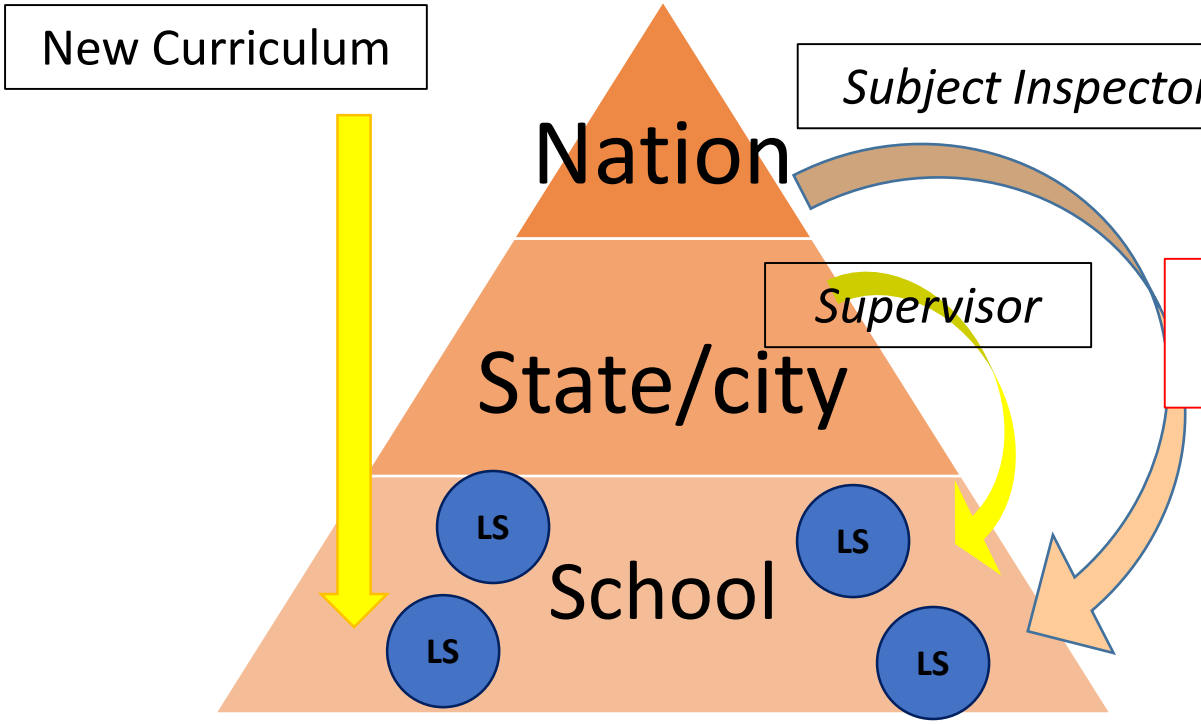
New Curriculum **Fully launching** (transition end)

"Transparency of curriculum revising process"
(National Central Education Council for Curriculum)
- Discussion details are opened at each stage via web-site. - Teachers/Instructors can read its details and try it through **Lesson Study**.

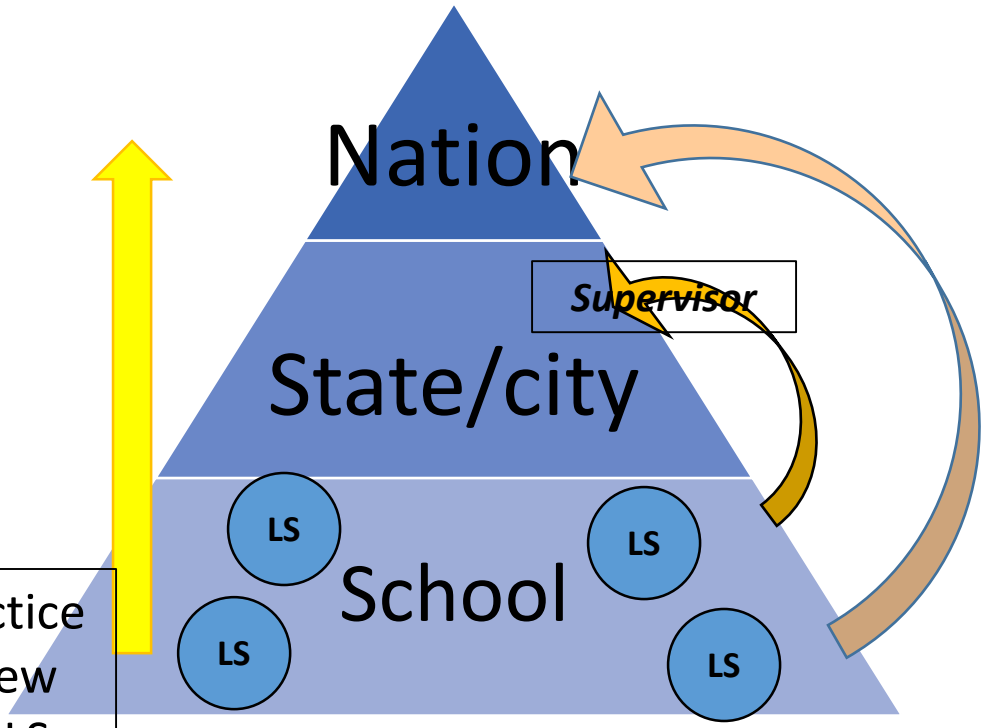
"Transition process"
a) Editing Text book according to new curriculum
b) Developing new lesson models at schools through **Lesson Study**

"Implementing process"
New curriculum needs TIME to be understood by teachers, and requires still more TIME to be practised. Continual **Lesson Study**

3.1 Admin. Infrastructure for Curriculum Implementation



3.2 Admin. Infrastructure for Curriculum Feedback

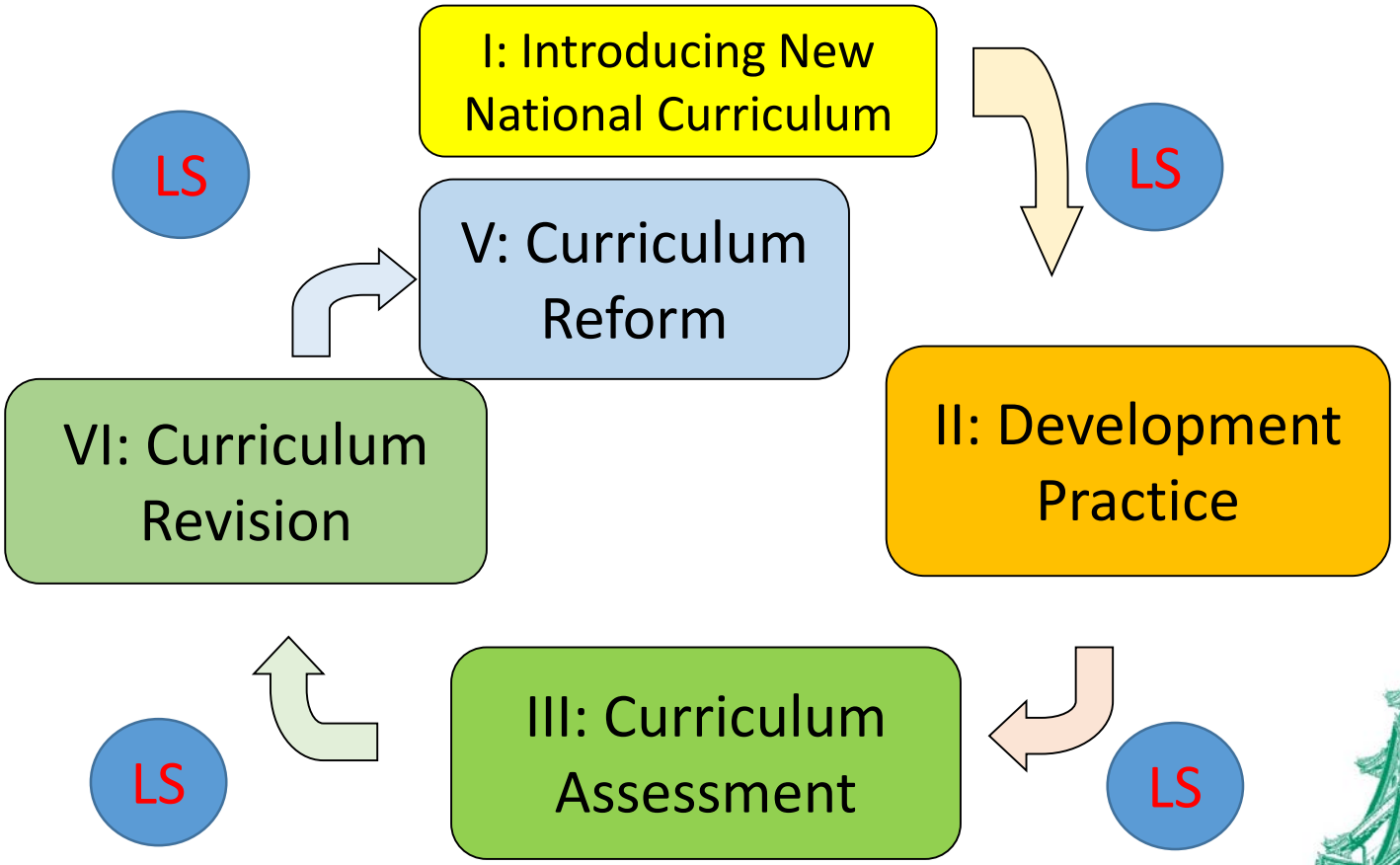


Feedback from practice (Curriculum Assessment)

Developing practice according to new curriculum by LS

Not for evaluating, But for improving

3.3 PDCA cycle of Curriculum Implementation & Innovation through Lesson Study



4. Two different ways of Lesson Study approach: Practice- and Research-oriented

4.1 EDU-Port Pilot projects conference 2018

- Professional development using Lesson Study based on practices at Bangkok Japanese School in Thailand（Tokyo Gakugei University）
- Supportive project for Disaster Prevention Education “BOSAI” based on pupils’ self-initiated learning model in Nepal（Hiroshima University）
- Collaborative project for teacher education with ASEAN and African countries ”Fukui-model school development”（Fukui University）
- Remote support system between teacher training center in Cambodia and Japan for development of digital teaching material for primary school English teacher（Japan Society for Educational Technology, EDU-Port Project team）

[Ref. https://www.eduport.mext.go.jp]

4.2 Cross Cultural Lesson Analysis (TBLA: Transcript-based Lesson Analysis)

The current issue and full text archive of this journal is available a
www.emeraldinsight.com/2046-8253.htm

Reorienting the cultural script of teaching: cross cultural analysis of a science lesson

Mohammad Reza Sarkar Arani
School of Education, Teikyo University, Tokyo, Japan
Yoshiaki Shibata
Graduate School of Education and Human Development, Nagoya University, Nagoya, Japan
Kim-Eng Christine Lee
National Institute of Education, Nanyang Technological University, Singapore, Singapore
Hiroyuki Kuno
Graduate School of Education and Human Development, Nagoya University, Nagoya, Japan
Masami Matoba
School of Education, Tokaigakuen University, Nagoya,
Fong Lay Lean and John Yeo
National Institute of Education, Nanyang Technologica
Singapore, Singapore

Abstract

Purpose – The purpose of this paper is to reveal the cultural script of t
secondary science lesson on the topic "Classification of Non-living Things" in
eyes of Japanese and Singaporean researchers and teachers. In particular, t
structural content, i.e. organization of learning activities of a lower secondary scie
and the culture of teaching, i.e. views about teaching held as tacit knowled
It focusses on students' inquiry skills in a participative and problem-driver
Singapore classroom.
Design/methodology/approach – This exploratory study adopts a cultura

The current issue and full text archive of this journal is available on Emerald Insight at:
www.emeraldinsight.com/2046-8253.htm

How teachers respond to students' mistakes in lessons

A cross-cultural analysis of a mathematics lesson

Mohammad Reza Sarkar Arani, Yoshiaki Shibata and Masanobu Sakamoto
Graduate School of Education and Human Development, Nagoya University, Nagoya, Japan
Zanaton Iksan and Aini Haziah Amirullah
School of Education, Universiti Kebangsaan Malaysia, Bangi, Malaysia, and
Bruce Lander
Graduate School of Language and Communication,

Received 17 December 2016
Revised 18 April 2017
25 April 2017
Accepted 28 April 2017

Journal of Social Science Education
Volume 13, Number 2, Summer 2014
DOI 10.2390/jsse-v14-i2-1368

Hiroyuki Kuno, Go Ikura

Investigating Society "Close-up": A Case-Study of an Individual Student, Yumiko, and the Construction of a Footbridge on Route 419

Is it actually certain that our students are changing during our social studies classes? This paper aims to reveal structural development and evaluation in social studies education which is related to national curriculum requirements and focused on particular students in order to test the effectiveness of the lesson. In order to increase students' concern for the theme, the teacher choose a topic related to the construction of a footbridge on Route 419 on the students' daily route to school as the lesson study unit.
The lesson unit took place in a 9th grade class of a Japanese Secondary School, called Asahi Chu-gakko in Kariya, Aichi, for about 40 days from September 21 to October 29, 2010. "Yumiko" is a so-called "case student" among the 37 students that is indicate effectiveness of the lesson through observing in detail his/her performance during the lesson. The authors describe the learning tracks of the case student Yumiko through pre- and post-Lesson Commentary and Lesson transcripts as evidence of her learning.

4.3 Transcript: data as cultural script

Category	A second-grade mathematic lesson at an Iranian primary school
Introduction	Segment 1 (T1-Sayana40): Presentation of problem and creation of hypotheses (1) (T1-T37). Splitting a walnut among the group At this time, the students in the class have already been split into 6 groups. The teacher went to each group's table and had them take a card from her bag. T13: OK, what number is written on the card? Group one14: Five.T15: OK, so, now take five walnuts. In this way, each group in turn took the number of walnuts corresponding to the number written on their (2) (T38-Sayana40) Presentation of problem and group After the students in Group 6 had taken 3 walnuts, the give me an answer. How can we increase the number In response to the teacher's question (presentation of th
Development	Segment 2 (T41-S115): Considering students' hypothese (1) (T41-Maryam59). Presentation of the students' ideas The teacher called upon each group starting with Group some more from the teacher. S46: We can break this in h "break them in half," so I won't write that. In this way, th the walnut in half/break it up (Groups 1, 2, 3, and 4), ar (Group 1), and *H4*: Buy walnuts (Groups 5, 6) (2) (T60-S115). Considering *H1-H4*, the consideration of each hypothesis began as follows. they really increase the number of walnuts in the class This utterance at S61 shows that the students are clear Considering *H1*, T64: If I had one walnut, and I broke The teacher tried to split the walnut by cutting it with a put all your strength into it!" T73: Has my number of wal

resentation 1	Sa	58	Understand.
	T	59	OK, the operation involved here is A ∩ B'. Loo are the numbers in these areas?
	Sa	60	1, 2
	T	61	Intersect them with non-B?
	Sa	62	1
	T	63	Intersection refers to elements that… aspects th
	Sa	64	Are the same

had definitely expanded their viewpoints on this problem through interviewing. Thereafter, it was followed by remarks that specifically dealt with annoyance felt by residents resulting from violation of their privacy, such as "I just cannot stand catching the eye of a pedestrian when I wear less clothing" (C7) or "Feeling of paranoia. Feel as if I were looked even though I am not." (C8)

Lesson Transcript of whole class discussion:
"What we have understood and have not understood, when I heard comments by local residents" (October 8)

Yumiko 5: I have only thought of the people who use the footbridge and never thought that there are people who are opposed to the footbridge construction, but I have realized that the people who are opposed to the footbridge construction are not those who use the footbridge but residents who feel annoyed about vibrations and others living nearby.

C6: When I saw the contrary opinions, I could imagine noise, etc., but I never realized that the position of the footbridge is on same level as the second floor and Mr. Inoue and Mr. Yamasaki may catch the eyes of pedestrians who cross the footbridge, and they cannot open windows, which is quite troublesome.

C7: I thought same way, too, when I heard that they could not open windows. In the summertime, we wear less clothing or sometimes wear only underwear at home. I just cannot stand catching their eye when I wear less clothing and I have to be aware of it all the time.

C8: This would be a mere addition, but Ms. M told us that she might catch the eyes of pedestrians, and it might be feeling of paranoia, feeling as if I were looked even though I am not. If I were Ms. M, I would be really nervous about it. I thought that they would

planning.

Post-Lesson Commentary of *Yumiko*: "What was well understood and not well understood" (October 8)

The footbridge is designed with consideration given to privacy but still needs more features designed to ensure privacy.. Screens would not mean anything if a pedestrian's head is higher than the screen. I thought that such features should prevent a pervert from forcibly looking in from the footbridge. I think that privacy is a serious problem for residents once again.

What I thought was that Mr. Nakata would have explained the project to residents in the same manner as he did to us but the explanation for the footbridge was not completely communicated to residents. Maybe, residents might not have listened carefully to his explanation and this may have caused the current problem

4.6 To identify problems by reflecting in class and identifying new action assignments (Phase F)

At the closing stage of the lesson unit, the teacher set up a class for discussing whether the footbridge was really necessary or not as well as for reflecting on what students have learnt from this lesson unit and comprehensively assessing this public project.

Facit

- Lesson Study as teacher education
  →Improving teachers abilities
- Lesson Study as research on education
  →Creating new knowledge of educational research

- "Japanese Style Lesson Study" has been emphasized basically and objectively on practical research.
- *Lesson Study* has raised teachers qualification not only for practitioner but as practical researcher.
- After 10 years of foundation of WALS Lesson Study academic researchers may be encouraged to connect practical research with theoretical research and raise research perspective on LS to higher level.

References

- Mohammad Reza Sarkar Arani, Yoshiaki Shibata, Kim-Eng Christine Lee, Hiroyuki Kuno, Masami Matoba, Fong Lay Lean, John Yeo (2014). *Reorienting the cultural script of teaching: cross cultural analysis of a science lesson*, International Journal for Lesson and Learning Studies, Vol. 3, Iss. 3, pp. 215–235.
- Mohammad Reza Sarkar Arani, Yoshiaki Shibata, Masanobu Sakamoto, Zanaton Iksan, Aini Haziah Amirullah, Bruce Lander, (2017). *How teachers respond to students' mistakes in lessons: A cross-cultural analysis of a mathematics lesson*, International Journal for Lesson and Learning Studies, vol. 6 Iss. 3, pp.249-267.
- Mohammad Reza Sarkar Arani , (2017). *Raising the quality of teaching through Kyouzai Kenkyuu –the study of teaching materials* ,International Journal for Lesson and Learning Studies, Vol. 6 Iss. 1, pp. 10-26.
- Hiroyuki Kuno, Go Ikura (2014). *Investigating Society "Close-up": A Case-Study of an Individual Student, Yumiko, and the Construction of a Footbridge on Route 419,* Journal of Social Science Education, Vol. 13, N. 2, Summer 2014.

APEC-UNESCO-Tsukuba International Conference XII（26 Feb. 2017）

Lesson Study as an Effective Element for Curriculum Implementation and Improvement: Competency-based curriculum into classroom

名古屋大学
NAGOYA UNIVERSITY

Hiroyuki Kuno
Nagoya University, Japan