What we informed Academy of Principals Singapore (APS) of classroom assessment in the Asia-Pacific Educational Assessment Conference (APEAC) 2017 and its reflection

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Masahiro ARIMOTO
(Professor, Graduate School of Education, Tohoku University)
Shin HAMADA
(Retired Principal, Akita City)

Abstract

This is a review and reflection on the keynote address given to about 500 principals in Singapore at the APEAC 2017 Innovative Assessment in Education Conference (APEAC 2017 Theme: Innovative Assessment - Opportunities and Challenges, organised by Academy of Principals Singapore). The first thing expected of Japan and offered to the rest of the world was the use of assessment and feedback to improve pedagogy instead of competition. In other words, it is suggested to see both formative assessment and lesson study at the same time, which nobody in the world try. For this reason, this speech focused on a group of high-achieving Akita elementary and junior high schools. In the invisible organization of team teaching, behaviorist scripts are incorporated and integrated into social cognition and social culture while whole class, between-desk instruction, cleaning and lunch with opportunities at various levels, including direct and indirect communication, unintentional, unconscious, and intrinsic assessment. The uniqueness of double-loop learning within organizations has been pointed out before, it is a kind of "*kata* culture" such as *neriage* (kneading) that is based on trust and is extended by *uchi* and *soto* cultures. It is necessary to collect evidence and expand it to a "worldview" and relational epistemology that allows the ultimate flowering of the human potential of "*zenjin*", including Japanese social culture and spirituality.

Keywords: tacit knowledge with worldviews, curriculum assessment in classroom, multiple feedback, School-based lesson study initiative and vertical loop within SBPLC (School-Based Professional Learning Community)

1 Introduction

The author described as follows in Annual Bulletin Vol 1 in 2015. At the 2014 Sendai conference, important comments were made by Shin Hamada, a retired principal and part-time lecturer from Akita University. He stated that Tohoku University's collaboration with the OECD

(on the 2.0 project) should include the essence of Akita prefecture, as top scorers of the National Scholastic Assessment, through teachers' network and connections *(tsunagari)* and teachers' tacit knowledge. Many Japanese cultural practices, including *kankei* (interrelationships), *kizuna* (bonds), and *kizuki* (with-it-ness), provide much needed empathy for others within this global context (Howe & Arimoto, 2014). As mentioned earlier, *kaizen*, which refers to the continuous improvement down to the smallest and most detailed level of self-introspection, is another important cultural concept. The American adage is often expressed as, "Ifit ain't broke [if it's not broken], don't fix it." In contrast, the philosophy of kaizen is, "if it isn't perfect, improve it." More specifically, "if it isn't perfect when it comes off the end of the production line, redesign it 'till it is" (Scriven 1989). This draft paper describes the subsequent development.

2 What the author proposed in APEAC 2017 - a review

In September 2017, the Academy of Principals in Singapore invited the author to participate in this third biannual conference on student assessment for the Asia Pacific region. They had put together a programme which will be of direct relevance to both classroom teachers, school leaders and system leaders, and we have an eminent line-up of international speakers and facilitators delivering a mixture of plenary keynote presentations, discussions and workshops. The theme of our conference is: Innovative Assessment – Opportunities and Challenges. In many ways student assessment is at a crossroads. We now have very well established international programmes which enable countries and jurisdictions to evaluate a whole range of aspects of their own system against external benchmarks, and over the past decade or so we have built up a considerable body of understanding and expertise about student assessment, in terms of good practice in the classroom, at school level, and at the wider, national level. We have learnt to distinguish between assessment of learning and assessment for learning, combining best practice in both summative and formative aspects of assessment with high quality teaching and learning. Our understanding of assessment has increased tenfold, but sometimes that understanding has not fed through to what we actually do in schools. So there are great opportunities for us to develop innovative assessment practices, but there are also many challenges. This conference explored some of these opportunities and challenges.[1)]

It has been ten years since I moved from Tokyo to Tohoku to start to follow up eight case studies with teachers. During the time, six years ago, Tohoku suffered from Earthquake, Tsunami and Nuclear power. The matter of Environmental sustainability has become a main topic to offer to the world from Tohoku. Ten yeas ago, this Tokyo seminar was the first one by OECD held in Asia Pacific Region. Strange to say, 99% teachers across Japan don't know the terminology of assessment. We continued to dialogue with Janet Looney. You've highlighted the Japanese approach

to collective learning quite there lessons that might be learned in the European context? The Key Competences as formulated in 2006 left out the "human" element. There's a need to support student agency (both individual and collective), well-being, and values.
But We see in the OECD (2016) statistical report that Japan scores significantly above the average levels related to performance and outcome equity. They observed the social reproduction of "altruism even in adversity", noting that Japanese inter-relationships (kankei) are, "rooted in thousands of years of Japanese tradition and has with stood outside influences". For schools located in regions that suffered damage from the Great East Japan Earthquake and schools that have since accepted children and students affected by the disaster, challenging issues include providing learning assistance to children and students affected by the disaster, and providing special guidance for their mental and emotional wellbeing.

If schools are a preparation for life, should they pay to knowledge creation as Mary James says. This is very important implication. Because the gap between school and society widens increasingly all the time. A question for itself knowledge-creating school had been shed in 2002 by DH Hargreaves, influenced by Nonaka SECI model from knowledge creating company.

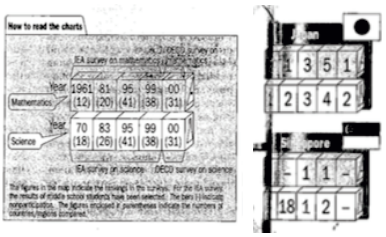
I would like to guide you to the education trip of Japan. Lesson-study practices are therefore projected from inside schools by highly committed civil servants, who are willing to take on and share the task of their own professional development. The picture classroom scene is last year. (Another picture is in 2007, ten years ago.)We often hear people point out the paucity of formative assessment practices in Japan. However The author believes that implicit and unconscious formative assessment is frequently used in Japanese education. I believe that this is what supports the high quality of classes in Japan. Teachers mindset and belief was important even now (See Appendix 1).

Look at this photo for 30 seconds and think out one question. Question A,B,C,D is How is the test score, When, Why and What meaning? Except Question A, When, Why and What meaning is hard enough to answer the questions even by our Japanese, from outside the eyes, even inside the eyes.

The notion of whole-class teaching is somewhat less certain Instruction to the whole class maximizes the transfer of knowledge from teacher to student (Stevenson & Stigler, 1992). However, for whole-class instruction to work, the students need to be well behaved (Bullock, 2002; Estell, Cairns, Farmer, & Cairns, 2002). Often, this is not the case in American classrooms

(Bullock, 2002; Estell et al., 2002). Therefore, whether the United States can learn from the East Asian system in this respect is less certain.

Regarding test score, IEA survey started in 1961. Singapore appeared in 1983, And then in 1995, you are top scorer, math and science.



See the highlights two TV news and documentary program share in Tohoku region this April and a couple years ago. And then watch this movie. The key scene repeated.

T1 Great. When, then, did the hamsters' weights change the most?

T1 Let's have Manami present her result.

T1 I think it changed the most in between the 6th and the 7th day.

S1 We got the same.

T1 Good job. You guys can now draw and interpret the line graph!

T1 But it's a bit hard to see, right?

T1 It's kind of hard to see how the line goes up, right?

T1 But as long as you guys can draw the graph, then it's all good. Everyone is ok, right?

T2 No, Ms. T1. The way I drew my graph makes it a little bit difficult to see.

T2 I draw mine this way, how about everyone else?

S It's good.

T1 Ms. Konno, isn't this a different hamster?

T2 No, it's the same one. Look at the graph.

S 35 grams. 35 grams.

After class, we interviewed the teacher. She answered as follows about lesson's flow.

1 Through problem-solving teaching, we can develop thinking skills, ability to use and reach other goals.

2 Subject setting, independent solution, collective discussion , reflection is the general process of teaching.

3 If students cannot understand by self-solving ,we hope they can understand during the group thinking.

(See: Appendix 2)

At the end of the lesson , we ensures the time for writing reflection. The angle is as follows.

1 What has been understood and what has not been understood? 2What are the reference places in friend's opinion? 3What is the point of the lesson?

Regarding future class teaching , we think as follows 1 Next week we plan to visit garbage disposal site. 2 At that time we are going to use the collected data to draw a graph. 3 We would like to devise a curriculum that can exploit mathematics learning to solve social problems.
Teacher 1 writes the note of the lesson plan and have a preliminary meeting with Teacher 2.
The staff room is an important place for planning lessons, information exchange about children.
We exchange information using a little time such as morning time, lessons, holiday time etc.
The quality of team teaching depends on communication between teachers.

This is the report of the lesson observation at Chikuzan elementary school. Through this observation, I felt the following changes. One is an obvious change from contents type lesson to competency type lesson. Previously, this unit was mainly about learning how to write a line graph. However, as I have mentioned above, the class is revealing the state of change as clear criteria in the graph. Interactive assessment is playing an important role here. According to the interactive assessment, the student bring out and share the criteria that the change is easy to see in the graph. At the same time, the result is internalized by each students. And it works as criteria when the students indicate phenomenon in mathematical way.

Another one is the changing of curriculum. According to the class setting from a unit time to the whole unit, the curriculum is changing from closing the textbook to opening to the society .
In accompaniment with changes in curricula and lesson objectives, the meaning of team teaching has been changing in the following ways: team teaching is not merely a form of lesson. Team teaching now embodies the professional learning community itself. Instructors collaboratively develop curricula and effective teaching methods. Furthermore, by teaming up veteran instructors with the newer rookies, practical teaching skills and knowledge can be inherited. The staff room is a location for educational research as well as school networking.

These improvements are also shown in the Nationwide Survey of Scholastic Ability and Learning.

In essence, collection and use of learning evidence using the word of *neriage* (in-depth dialogic interaction) in the contexts of school-wide assessment and pedagogy.
This video is break time, playing after the math class.
Mr Hamada appears in traditional happi kimono as a principal. I took this picture 10 years ago.

The fastest way to become a useful adult in the future is to live the most childlike childhood possible. A national debate was sparked in the United Kingdom, which was troubled by children's academic and moral decline and the increasing number of NEETs. And after a thorough

discussion, the above conclusion was reached. These are very suggestive words.

The more affluent and convenient the world becomes, the more difficult it becomes to raise a child. The space to play around is shrinking, and more time is spent in private rooms with TV and games. This has a serious impact on children's development. Humans are fundamentally a group animal and live by building a society. In order for human beings to become human beings, they learn how to deal with others through experiences of interacting and clashing with many people.

In Akita, many schools value education that teaches children to learn through nature, to interact with diverse people, and to learn about traditional culture, as seen in "hometown education *(Furusato kyouiku)* ". In this article, we will introduce the "education of the heart through traditional Akita events" at Chikuzan Elementary School.

Learning about the Four Seasons

It's spring in Akita, and as the snow melts, the practice of the *Kanto* (pole) dance begins. In spite of recess and after-school hours, the boys give away the poles and the girls are absorbed in practicing the musical accompaniment. The poles, nearly five times as tall as they are, and with 24 lanterns, are heavy. It is very difficult for an elementary school student to lift it. Local lantern masters frequently come to guide the children, and the older students take the younger ones under their wing. Initially, the children may stagger, but within a few months, they are able to support themselves with their foreheads, shoulders, and hips.

When summer approaches, he goes to the local senior citizens' home to show the results of his practice. The senior citizens clap and cheer with tears in their eyes. Some of them even start dancing to the music. The expression on the children's faces changed in a flash. The hearts of the audience and performers become one. The energy from the old man makes the performance

even better. The spirits of the audience are high as the festival gets underway.

In the summer of Akita, the Chikuzan Poleto finally goes on th e road. The children, led by the musical accompaniment, are seen off by loud cheers from the community and their parents. The *Chikuzan Kanto* joins the town's *Kanto* and walks to the *Kanto* Hall where a large crowd awaits. At 7:30 p.m., at the sound of a flute, all the polterns rise up at once. The swaying ears of light, the raging musical accompaniment, and the roar of the crowd make the children the star of the festival.

The harvest season, school recitals, and senior citizen's meetings also feature the Chikuzan Poleto. The children are full of confidence after the summer festival. They become aware of themselves as inheritors of the *Kanto* culture, and eventually become the bearers of *Kanto* in the town and growing up.

It's winter in Akita, the season of the "Narayama Kamakura", a small New Year event. Children join hands with the god of rice cultivation, Suitengu, and eat freshly pounded rice cakes and enjoy sledding enthusiastically. Afterwards, a coming-of-age ceremony is held in the presence of the community and families.

The following resolutions were made by the children My dream is to be a money-saving housewife. But despite what I say, I don't help out much. I'm good at cooking, but I'm not good at cleaning up. When I look at my mother, I wonder if she is able to do housework this much every day and not get exhausted listening to our children's selfishness. I admire mothers like that. It would be nice if I could make my children laugh while raising them without being too serious like their mother. That's why I want to help my mother all my life, to learn many things and to make my family happy. Thank you for all you have done for me, and thank you for teaching me so much. I would like to thank you for your continued support.

To conclude here, Akita's rural lifestyle, early to bed, early to rise, and early to eat breakfast, supports a solid life and learning habit. Rich traditional events, such as the *Kanto* Festival and Kamakura, foster rich human relationships and serve as the foundation for stable community and family education. An abundance of nature yields rich foodstuffs and is a source of good eating habits and physical and mental health. It guarantees students' ability to concentrate and persevere. Warm humanity fosters a trusting relationship between school and parents, and enhances the educational power of both school and home.

Learning about the traditional events of Akita is the inheritance of Akita's culture and lifestyle. It is the "education of the heart" itself, and provides meaningful insights into the development of the socio-emotional skills proposed by the OECD Center for Educational

Innovation: (1) goal attainment (perseverance, passion for goals, self-regulation, etc.), (2) collaboration with others (respect, kindness, care, etc.), and (3) emotional management (self-esteem, confidence, calmness, etc.). Think of it as a thing.

The following is problem raising by Hamada from WALS 2018 Nagoya Symposium Part 2

(1) Learning from Local Culture　Community traditions are religious events that are performed to pray for a good harvest, health and safety. Religious sentiments raise normative awareness and foster a spirit of mutual trust and help. Tōhoku is a treasure trove of traditional events and intangible cultural assets in the region, which form the basis of local culture. The perseverance, modesty, and spirit of mutual help shown by the people of Tohoku during the earthquake are supported by the local culture. Participating in community events helps to develop socio-emotional skills. Learning local culture means learning how to live and how to be human.

(2) Formation of a learning community　Children mainly belong to four cultural communities. They are the family, the classroom, the school, and the community. Children subconsciously internalize community-specific ways of seeing, thinking, and behaving. Those values and beliefs act as criteria in judging things. Therefore, the formation of a learning community involving families, schools, and communities is essential to foster social-emotional skills and well-being and values in children.

Hamada replied in response to the issue raised by Arimoto as follows.

(1) What supported the development of the Chikuzan Elementary School TT (Team Teaching)

Hypothesis 1: No one child should be left out (equality)

Hypothesis 2: Towards educational management by organizational power rather than individual teacher competence (collegiality and collaboration)

Hypothesis 3: Learning from children: optimizing instruction through assessment (improvement and craftsmanship)

(2) What is the local culture of Chikuzan?

-Published in 1983 in commemoration of the 100th anniversary of the Chikuzan Elementary School, from the Person and Climate of Chikuzan and Narayama

On Editing - Nojiri Shigeru, Principal (graduate of 1937)

We human beings grow up as individuals, but our bodies and minds grow up under the greatest influence in the protective group of families that we inherited from our distant ancestors and continue to live in the present, fleshed out by the influences of neighborhoods, schools, nations and the international community. Therefore, we must leave our descendants a well-functioning family and an ethical society with a clear sense of right and wrong.

Formation of the region

Chikuzan is a name that combines Chikuzan and Narayama.

Chikuzan: Residence town of lower class samurai

Narayama: a town of foot soldiers, farmers, townspeople (merchants and artisans)

The origins of Chikuzan Elementary School

Founded Chikuzan School and Narayama School in 1874

Chikuzan School and Narayama School merged in 1881 and created Chikuzan Elementary School by taking one character from each school's name.

Yangmukan

Built with money from the sale of the Narayama School in 1882

The focus was on people who were related to samurai families, including Minato Yugoro (great-grandfather of Minato Saburo).

Kendo, Judo, etc., became a center for youth education

Minato Yugoro established the Akita Prefecture Scholarship Society and also built the Scholarship Hall in Tokyo to encourage not only boys but also girls to go to school.

Kanto Festival

The Tanabata event is held to wish for a good harvest, good health, and skill development.

Started by artisans and merchants living in the outer town (Machinistown)

Narayama area is thriving in the Chikuzan School District

Narayama Kamakura

Akita City's Kamakura event, along with Yokote Kamakura and Rokugo Kamakura

A square enclosure made of snow is covered with a roof made of straw and enshrined to the water god and Kamakura-o-myojin inside.

The Narayama-Ohta neighborhood association revived it as a children's event after 60 years in 1975.

Akita Women's Home

A maternal and child support facility established in 1926 by Kai Hayakawa, Haru Wasaki and other members of the Akita Branch of the Christian Women's Action Committee of Japan, who stood up for women's liberation, to help underprivileged women (currently relocated to a site adjacent to Chikuzan Elementary School). A monument to the birthplace of the Women's Liberation Movement stands on the site.

Haru Wasaki was from the Narayama clan. She also attended a local Christian English-worthy school for the poor when she was at Chikuzan Elementary School. While running a beauty salon, she opened a craft school to help women in the flowering willow industry and became a leader of the women's movement in Akita. She was elected to the House of Representatives in the first general election after the war, and devoted her life to improving

the status and culture of women and protecting infants.

What impact did local culture have on the education of women in Chikuzan?

(1) Equality The former samurai led the effort to promote community-based education, such as the establishment of Yangmukan, a school for youths to learn together beyond their social status.The children of ex-soldiers took the lead in raising the status and culture of women and protecting infants to create a society of equality and helping the weak. The ethics shared by the samurai, which included a pompous and honest spirit, and the Christian ethics resonated with each other to form the ethics of the community. The ethics of TT at Chikuzan Elementary School are supported by the ethos that "no child should ever fail.

(2) Collegiality and collaboration In 1883, Chikuzan School and Narayama School merged to form the Chikuzan School District, where school and community integration were combined. This was the driving force behind the town's development, which allowed former samurai, farmers, artisans, and merchants to transcend class distinctions. This was the driving force behind the development of the town beyond the status of samurai, farmers, craftsmen, and merchants. In addition, they have developed a curriculum that incorporates local history and culture, and principals Isamu Sato and Shunetsu Kato have incorporated pole poles and Narayama kamakura into regular educational activities. The spirit of community building in Chikuzan was also applied to the creation of a school where children are nurtured through the eyes of more than one class and grade, resulting in the Chikuzan-style TT. The traditional culture of Chikuzan is a major part of the school's curriculum, which helps to build children's character.

(3) Festivals, bonding, improvement, and craftsmanship The roots of Narayama Kamakura lie in the samurai families. Initially, it was held mainly by samurai families with boys who were welcoming the arrival of Genji as an event to honor Gongoro Daigongen in Kamakura, but it fused with the festival of Suitengu, the god of agriculture, and spread to farmers and townspeople as well. The roots of the *Kanto* Festival are found in artisanal towns. On the other hand, the roots of the *Kanto* Festival are rooted in the artisanal towns. The *Kanto* Festival is only possible with the skills of the craftsmen who make lanterns, bamboo poles, drums, and bachi, as well as costumes such as half-dressed suits, tabi (socks), and geta (geta). The stamina to lift a nearly 60kg pole and the skill to support it with the palms of the hands, forehead, shoulders, and hips are the same as the stamina and skills required of construction workers. The festival is made possible by the cooperation of many different craftsmen.

The festival is one of the biggest events in each town and fosters a sense of unity among the residents. The festival is the biggest event in each town, and it fosters a sense of unity among the residents. Students practice with a sense of rivalry with each other in preparation for the festival. The traditional skills are handed down through the guidance of veterans to young

players, and the skills are refined through friendly competition with each other, and the results are verified and improved in the Myogikai. The 48 lanterns represent the rich harvest of rice. A good harvest coincides with farmers' prayers and leads to the stability of the clan. The *Kanto* Festival, which started with the townspeople, eventually spread to the warrior class and became one of Akita's signature festivals.

In February 1995, the children recreated the "Ancient Kamakura" on the grounds of Chikuzan Elementary School. At the same time, a supplementary book, "Telling the Ancient Kamakura," was compiled and used for hometown education. At about the same time, the Chikuzan Elementary School *Kanto* Club was established and took part in the *Kanto* Festival as an official member of the *Kanto* Club of Akita City.

The following is reflection.

1) Formation of a learning community The publication of the local magazine "The Character and Climate of Chikuzan Narayama" as a commemoration of the 100th anniversary of Chikuzan Elementary School is very significant. This means that "town planning" and "school planning" have been promoted for many years, and a learning community involving families, schools, and the community has been formed. This means that a learning community has been formed that involves families, the school and the community. The cultural script of compassion, improvement, and bonding shared by the local residents, which is based on equality, collegiality, and collaboration, has been used to promote the education of Chikuzan, especially the continuation of team-teaching. Research enabled.

(2) Tradition and Innovation Innovation" in the postwar period always came from the United States. If we define "tradition" as education supported by Japanese historical culture and "innovation" as education supported by the historical culture of the United States and other countries, the following considerations can be made: - Tradition has always been influenced by innovation. Tradition has always been transformed under the influence of innovation. The other is "fusion/adaptive", which refers to a movement to "adapt to the new era" while still relying on tradition as a foundation. In the case of Chikuzan Elementary School, the shift to a curriculum management system that balances classroom management and subject management based on grade level management, preparing a common syllabus and software for all grades, making the entire school building a place for learning (hardware), and using various software to support cooperative inquiry-based learning with the help of the entire teaching staff (resources) has been underway. As a result, Chikuzan Elementary School was able to transform its American-born learning-based TT into an inquiry-based TT based on Japanese classroom culture. As a result, Chikuzan Elementary School was able to transform the American-born learning-based TT into an inquiry-based TT based on the Japanese classroom culture.

3 What the author proposed in APEAC 2017 - Its reflection

Values may play a very important role in increasing the salience of life domains, therefore amplifying the positive and negative affect experienced in those domains. An additional effect of values on life domains is the notion that values heightens one's needs and goals within those life domains. For example, in the context of the material life domain, materialism (as a value that makes people feel that money, income, and other financial considerations are highly valued in life) inflates people's expectations of their standard of living. The more materialistic a person, the higher their expectations of standard of living, which leads to negative evaluations of standard of living (i.e., low subjective economic well-being), ultimately and adversely affecting overall subjective well-being. … self-realization, individual growth, self-development, mental health, flourishing, etc. … described research showing how sociocultural factors (Sirgy 2012, p. 335).

Fang, et al (2013) examine the connections between national culture and student achievement. Using Hofstede's six cultural dimensions and the two dimensions from the World Values survey, we conducted multiple regressions to determine the most significant predictors of student achievement as measured by the 2009 Program for International Student Assessment in reading, mathematics, and science. Analyses found that the most significant predictors of student achievement on all three student outcome included the following cultural dimensions based on two different frameworks: (1) a culture's focus on fostering long-term orientation to include emphasis on perseverance to achieve future-oriented results and (2) a culture's focus on secular-rational values vs. traditional values. In addition, findings indicate that when mapped geographically, similar patterns emerge among the two cultural dimensions.

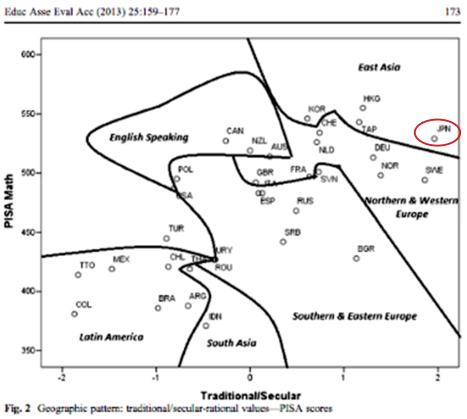


Fig. 2 Geographic pattern: traditional/secular-rational values—PISA scores

TABLE 1
THE MAIN FEATURES OF EXAM-RELATED RELIGIONS AND THEIR SERVICES IN JAPAN, KOREA, AND TAIWAN

	Japan	Taiwan	Korea
Religion	Shintoism Buddhism Confucianism	Chinese polytheism Buddhism Confucianism	Buddhism Christianity Confucianism
Church institution	Temmangu temple Buddhist temple Confucian temple	Wenchang temple Buddhist temple Confucian temple	Buddhist temple Christian Church Confucian temple
Deity	God of Exams: Sugawara Michizane	God of Scholarship: Zhang Ya Star god: Kuixing Mr. Redcoat: Zhu Xi Mr. Golden Armor	Buddha Christ
Priesthood	Special priests in Temmangu Palace	No special priest	No special priest
Scriptures	Special prayers	No special prayer	No special prayer
Totem	Different animals, scenarios, humans, etc., printed on the *ema*	Buddhist image	
Occult objects	Painted horse (*ema*) Headband (*hachimaki*) Charms (*omamori*) Pencil set for scholarly achievement (*gakugyo joju enpitsu*) Praying holy seal (*kihan shinji*) Gratitude gift to God (*gokaku orei*)	Brilliance lamp (*guangming deng*) Charms (*omamori*)	Special Buddhist beads/rosary

Regarding an international comparison investigating the relationship between national culture and student achievement, societies with high scores in Secular-rational and Self-expression, secular and emancipative –values: Sweden, Norway, Japan, and some English speaking countries. self-expression

values referred to as “well-being values”. The Japanese has demarcated her own culture from Western modern knowledge.

Secularization and desecularization could coexist in Asian cultural value. Zeng (1996) shows features of exam-related religions and their services in Japan, Korea and Taiwan in “Prayer, Luck, and Spiritual Strength: The Desecularization of Entrance Examination Systems in East Asia”.

A suggestion for Knowledge creation school and teachers roles in the UK

Each school should have its own leaving certificates, based on its own curriculum. The standards of these schools should be sampled and corrected. But the first requisite for educational reform is the school as a unit with its approved curriculum based on its own needs, and evolved by its own staff. (Whitehead, 1932)

A suggestion for knowledge creating school and teachers in the Japan

Sample of the East

(…People create value out of the day-to-day gains and benefits through divisions of labor and specialization….) Teachers should conduct academic research in order to create value for the dual purposes—i.e., for the sake of learning economy of their students and saving them from examination hell at the same time as well as for their own benefit. In other words, teachers should be thinking that the principles they direct or guide (*shido*) must lead to the principles of guidance (*shido*) for student learning. (Makiguchi, 1934)

Some quite ancient thoughts on feed back, “a person can know another’s mind by listening to his voice (Arimoto, Clark 2018). We in Tohoku are living in the Eastern edge of Silk Road. When we see Shumidan (Buddhist alters) in Golden Hall of Chuson-ji Temple (850, 1224-), there are Four heavenly kings (guardian kings) are believed to guard the four directions. In modern, dynamic Buddha is located in central position. This shows World views. This principles stress the importance of evaluation, since they refer to the possibilities and choices which guide actions. “We have a privilege of living in a disaster-prone country”. This is the narrative from one high-school student; a positive response to the Tohoku/ Fukushima tragedy of 2011. There exists a cultural foundation for this student's resilient disposition towards severe environmental challenge, introducing three closely-related and fundamental aspects of Japanese society: (a) inseparability of body/mind; (b) cultural unity from geographical circumstances; and, (c) "selflessness after emptying the ego" behind the scene of "quite

dignity", which refers to the deference of individual needs to those of the local (and, by extension the national) community.

Mori Arimasa (1911 - 1976), was the grandson of Meiji period statesman Mori Arinori. His father was a Christian priest. A Christian himself, he relocated to France in 1950 where he remained until his death. He was an accomplished organ player and fluent in French and Latin. It seems to me that he understood European's better than they they themselves. Mori was quite critical of his own country being one of several commentators (Kawai, 1977; Kishida, 1993) who believe that the Japanese self lacks an intra-psychic (in ones head) other that might provide it with a "pivot" to leverage itself out of face to face, first-second person, social relationships [(2)].

Characteristics of the Japanese Self is as follows. *Japan - Moveable self; Self is constantly shifting vs USA and Europe - Self should be centered and stable. The characteristics of the self-structure of the Japanese as follows. Japan Self-structure Intercooperative (Relative Self); Dependency on others Affirm; Ba (Place) Admit vs USA and Europe - Self Interdependent Self (Absolute Self) ; Dependency on others Eliminate; Ba (Place) Not Admit.*

In relation to the characteristics of Japanese people's group building, Ogasawara Yasushi discusses "place" and "atmosphere".

It is clear that "place" and "atmosphere" are inseparably linked to the way in which Japanese people create groups and the aspects of the groups they have created. Philosophically, the atmosphere of a gathering of people can be described as

Recognizing the fundamental spontaneity of private intersubjectivity that cannot be individualized.

Here he refers to the "intersubjectivity" (which refers to the existence of consent in two or more people, not necessarily human beings, that can be understood by Westerners. This state is generally regarded as superior to the subjective and inferior to the objective) and "inter-subjectivity" (understanding each other through physiological commonalities at the level of bodily sensations), which can be understood by Westerners.

However, I do not believe that such all-reducible logic of analysis and contrast cannot clarify the essence of the "atmosphere" that the Japanese self forms and perceives, so I will not discuss it in this paper.

In his philosophical commentary on the above statement, he asserts that the Japanese are high context, so everything is private. I disagree with this statement because there are plenty of public matters, even in a high context, but I felt that there are some things that he has not yet worked out for himself.

Therefore, in this essay, I would like to consider only the point that I agree with, "The 'atmosphere' that is being referred to now is what was once referred to as a 'place'.

The "air" is assumed to be transitory or transient in its repetition and change. It is important to note that this is not the case.

He pointed out that while his generation did not mind being called "out of place" or "out of place," today's young people abhor the idea of being called "KY," saying that they cannot read the atmosphere.

In questioning the students, it was reported that the younger generation is excluded and isolated when called "KY," and the conclusion was that this may be because one person used to belong to a diverse "field" of different ages and fields, but now they only belong to the same "field" that always does the same thing at the same age.

The "field" we are talking about here is the "world".

It is true that I, as an older generation, have belonged to a variety of "worlds" since I was a child until now, or rather, I have been in a variety of "worlds" at the same time, so I have a certain balance and perspective, and I have been able to edit my "self", so to speak. This is the same with Ogasawara, who explained the "street smarts" he touched on as learning from experience, but essentially he may have been referring to things that were commonplace in our generation.

For example, if one "world" gets in the way of our activities, we don't fear such developments because we believe that there is another "world" or even a new "world" to be created. Instead, they seek a "world" in which they can work more freely without holding back [(3)]Also see (Lebra 2005).

How seeing is multifaceted…. The Buddhist theory of " *shiki* (insight)" is almost a comparable systematic description of consciousness. Sense, also called mind or will, is a separate sense in which the mind identifies a boundary (object). The six senses of color, voice, smell, taste, touch, and law are seen, heard, smelled, tasted, touched, and known. The six senses are the eyes, ears, nose, tongue, body, and mind. Or add the seventh sense, sena-sense, and the eighth sense, arya-sense, and you have the eight-sense theory (the seventh sense is the will and the eighth sense is the mind), or add amala-sense to it and you have the nine level consciousnesses (Nine kinds of discernment) theory … You can think of the realm of consciousness as a thing (Takahashi 1938, p. 323).

This diagram (I'll omit the figure) is the hypothetical sketch of cultural constructivism based on world views to explain “quiet dignity”. Again, I do hope you are on the same page. Pullout from exemplary school and region vs pilot from students by AfL teachers effort to change teaching for deep understanding against a backdrop of test culture. Bandura (1997) defines collective efficacy as “a group’s shared beliefs in its conjoint capabilities to organize and execute the courses of action required to produce given levels of attainment” (p. 477). Collective efficacy has important implications for teacher training and continued professional development.

4. Global Teaching InSights- A Video Study of Teaching

The American Educational Research Association and the Organisation for Economic Co-operation and Development are holding this interactive policy forum to discuss new results from the Global Teaching InSights Video Study—formerly known as the Teaching and Learning International Survey (TALIS) Video Study). After a presentation of findings, an international panel of policymakers, experts, and representatives from the teaching profession will consider the results from their vantage and discuss implications for further improving teaching and learning. Findings from "Global Teaching InSights–A Video Study of Teaching" were released on November 16, making this research-to-policy forum significant and timely.[4)]
In the chat session, I commented as follows (24 November 2020).

Thank you Andreas. To be honest, we Japanese should undertake an in-depth exploration of the OECD Global Teaching Insights video study as a School Based Lesson Study Initiative from the perspective of whole-school curriculum assessment, not just teaching methods. It is becoming clear that the assessment is not done only horizontally as in the West, but also vertically, including the parents and the community, in a spiral, with a virtuous circle and multiple feedback. A further "socio-cultural approach" that picks up various voices is essential for the clarification of the assessment. At the same time, it is suggested that it has a historical background.
The response for my chatting, the chat received the agreement

- I'm intrigued by Masahiro Arimoto's suggestion
- Masahiro Arimoto makes a great point about evaluating teaching/instruction more globally in the local context, or not evaluating it in isolation within the school or classroom.
- In Japan, am I correct that the first two years of primary education is mostly involved with learning what is culturally important in Japan as well as socio-cultural manners, etc.? If so, this may effect the importance of socio-cultural importance as children grow and learn.
- One important part of Masahiro's comment is to view teaching as fundamentally involving a feedback cycle. With the class itself, among teachers and among the larger community.
- Yes, Jere, I like what you said
- Completely agree to Mr Masahiro Arimoto. We are currently starting such surveys around digital education with first items. Hard work but interesting. Kind regards to Japan … and so on

5. Conclusion

The authors conclude the key is *gakkyuu_keiei* (classroom management in Japanese). The teachers believed that the school ought to be a community, and devoting much attention to the quality of human relations *(ningen_kankei)* tried very hard to make it one.

Japanese society as being governed by an emphasis on *aidagara* (the interpersonal) rather than the Western notion of an autonomous self, and they stress the trans-temporal principle of group formation based upon kinship lineage. Patterns of *ie* society are compatible with modernization and industrialization. The Japanese government after the Meiji Restoration banned the *shumei* practice as the need for identifying individuals for tax and draft purposes arose in the process of building a modern nation state. The *shumei* practice lives on today only in the traditional performing arts, such as *kabuki,* where stage names are bequeathed from father to son (Sakata 2013).

Reciprocity, complementarity, and role diffuseness are some of the operative principles in Japanese society, and in order to produce persons who act in recognition of the imperatives of the world as it is, an array of admonitions is deployed enjoining the individual to behave in certain ways. He is taught that it is virtuous to endure, to persevere, to abjure, to bear, to renounce, and to acquiese. The vocabulary includes such common words as *gaman, shinbo, ganbaru, akirame, ochitsuku, enryo,* and there is the durable proverb deru kui wa utareru -the protruding stake gets hammered down (Smith 1985). It is a kind of "*kata* culture" (Arimoto & Clark 2018) that is based on trust. They internalize cultural scripts (such as a sense of ittaikan ： The key issue is sympathy (*kyokan*). Here *Kyokan* is a Japanese word that means "feel-one". The ultimate form of such communication is *ittaikan* ('feeling of oneness' 'fundamental unity'). It is necessary to collect evidence and expand it to a "worldview" and relational epistemology that allows the ultimate flowering of the human potential of "*zenjin*" all people, including Japanese social culture and spirituality (Heisig et al 2011).

Note

1) <https://www.aps.sg/index.php?option=com_content&view=article&id=167&Itemid=166>

2) <http://www.burogu.com/2015/02/no-other-of-japanese-self-mori-arimasa.html>

3) <https://cds190.exblog.jp/16403522/>

4) AERA-OECD Forum: Measuring Teaching at a Global Scale—Policy Perspectives on the Findings from the Global Teaching InSights Video Study was held on line November 24, 2020 9:30-11:00 AM EST / 3:30-5:00 PM CET <https://www.aera.net/Events-Meetings/Measuring-Teaching-at-a-Global-ScalePolicy-Perspectives-on-the-Findings-from-the-TALIS-Video-Study-2020> #GlobalTeachingInSights analyzes the complexities and subtleties of various classrooms, classes, and female teachers-male teachers using recorded video footage of more than 700 classes in eight countries and regions, including Japan.

References

Arimoto, M., & Clark, I. (2019) . Interactive assessment: Cultural perspectives and practices in the nexus of 'Heart and Mind'. In J. Smith & A. Lipnevich (Eds.) , *Cambridge Handbook of Instructional Feedback* (pp.474-503) . New York: Cambridge University

Bandura, A. (1997). *Self-efficacy: The exercise of control*. NY: Freeman.

Bullock, l. R. (2002). Bullying among children. *Childhood Education,* 79(3), 130—133

Estell, D. B., Farmer, T. W., Cairns, R. B., & Cairns, B. D. (2002). Social relations and academic achievement in inner-city early elementary classrooms. *International Journal of Behavioral Development,* 26(6), 518–528.

Fang, Z., Grant, L., Xu, X., Stronge, J., & Ward, T. (2013). An international comparison investigating the relationship between national culture and student achievement. *Educational Assessment, Evaluation and Accountability* 25, 159–177.

Heisig, James W., Kasulis, Thomas P., Maraldo, John C. (Eds) (2011) *Japanese philosophy : a sourcebook (Nanzan library of Asian religion and culture)*. University of Hawai'i Press.

Lebra, Takie (2005) *The Japanese Self In Cultural Logic*. Univ of Hawaii Press.

Sakata, S. (2013, January 28) Historical Origin of the Japanese Ie System. http://global.chuo-u.ac.jp/english/features/2014/03/4411/ (accessed on 1 March 2021)

Smith, R. (1985). A Pattern of Japanese Society: Ie Society or Acknowledgment of Interdependence? *Journal of Japanese Studies,* 11(1), 29-45. doi:10.2307/132226

Stevenson, H. W. , & Stigler, J. W. (1992). *The learning gap*. New York: Summit Books.

Sirgy, M. Joseph (2012) *The Psychology of Quality of Life - Hedonic Well-Being, Life Satisfaction, and Eudaimonia* Springer.

Takahashi, Satomi (1938) *Ninshikiron (epistemology)* Iwanamisyoten.

Zeng, Kangmin (1996), "Prayer, Luck, and Spiritual Strength: The Desecularization of Entrance Examination Systems in East Asia,"*Comparative Education Review*. 40(3): 264-279.

Appendix 1 Practice cases

Subject area: 1st year junior high school math assignment

Class subject: "Where is my grandmother's house?

Class: Akita City Sanno Junior High School, Otomo Masazumi

Student Responses	Notes
1 Understanding the problem Watch the video message.	
My grandmother lives in the city of Daisen, and in August and March, we buy snacks and juice from the nearby supermarket and watch the fireworks from her house. After a short time, I hear the sound of the fireworks. *So, everyone. Do you know where my grandmother's house is? The first time you hear a sound, you can hear it after a while.* *So, everyone. Did you find out where my grandmother's house is?*	
T I will hand out a map of Daisen. T Do you know your grandmother's house is? C I can't do that. C I don't have enough information. T So I have found the location of my grandmother's house. What would you like to know in order to C. The address and phone number. C Nearby buildings. T What if you don't know the address? C. The distance from the fireworks venue to the grandmother's house You can find out. T You have to know how far it is to your grandmother's house. What should I do? C Using the speed of sound or the time it takes to hear the sound to seek a solution.	Hand out maps of Daisen city and fireworks events in August and March Identify the location of the field. From the scale of the map, 1 cm = 400 m Check the Take up any trivial matter and make sure that the various corners How to find the location of your grandmother's house from the degree Consider the following. Other things are expected to come up that you want to know but what if you don't know it Ask if you can find out the distance from the two points where the fireworks will be held. If you know the distance from the two points where the fireworks are located Finding the location of your grandmother's house, the whole Identify with the body. Ask why the sound is heard late

2 Seeking ways to solve In T, using the speed of sound and time, the grandmother Let's try to find the house of You will find that the sound Do you know how fast the C I don't know C approx. 330 m/s T The speed of sound is 331.5 + 0.6 x t (t is temperature) You can ask for That is, the temperature What happens to the speed of sound when the C It gets faster. T Is there anything else you want to know or ask? Nah. C. Want to know the temperature.	In the unit of letters and equations, the speed of sound equations. In the unit of letters and expressions, the speed of sound equation 331.5 +0.6 × t (t is temperature) Recall that you learned about Also, the sentence To capitalize on the learning of letters and expressions, the word expression in Present a letter equation, but not a letter equation. Verify that the speed of sound varies with temperature.
2 Seeking ways to solve In T, using the speed of sound and time, the grandmother Let's try to find the house of You will find that the sound Do you know how fast the C I don't know C approx. 330 m/s T The speed of sound is 331.5 + 0.6 x t (t is temperature) You can ask for That is, the temperature What happens to the speed of sound when the C It gets faster.	Questioning why the sound is heard late In the unit of letters and equations, the speed of sound equations. In the unit of letters and expressions, the speed of sound equation 331.5 +0.6 × t (t is temperature) Recall that you learned about Also, the sentence To capitalize on the learning of letters and expressions, the word expression in Present a letter equation, but not a letter equation. Verify that the speed of sound varies with temperature.

T Is there anything else you want to know or ask? C. Want to know the temperature. In August, it was 30 degrees Celsius, while in March it was -2 degrees Celsius, if you don't know the temperature in August and March. The students notice that they do not have to T Now let's find the speed of sound in August and March. (For those students whose speed of sound is not required.) T The temperature in August is 30 degrees Celsius. 331.5 + 0.6 is the formula for the speed of sound. C 331.5 + 0.6, making them aware of the error. C 331.5 + 0.6 × 30○ Let the students decide for themselves whether or not to use the approximate value of 331.5 + 0.6 × 30○ Where does the student calculate first? I want to. However, if a student is unsure or has trouble with the calculation C 0.6 × 30, then it is 349.5. For those students who are unsure of what to do, you can use an approximate value. Tell the student that it is an approximate value. This is the same for distances and C 350 m/s.	
3 Solve it on your own I understand the speed, but what else I want to know is: ○ Set aside time to seek necessary information. I want to know how long it takes to hear a sound. C I want to know how long it takes to hear a sound. I want to know how long it takes to hear a sound. T It took 4 seconds in August to hear the sound, and 12 seconds in the moon to find the distance, reminding us of the 3. notice that it takes time to hear the T. Is there anything else you want to know? I'll make it spooky.	You may not know what 1400 m is (as opposed to 4000 m is 10 cm, even if you notice that 4000 m is 10 cm).

Will I be able to find the location of my brother's house? Now let's try to find it on our own. (for students who can't do anything after asking for sound speed) T What did I need to know to find my grandmother's house? C Distance. T What was the formula for finding the distance? C (distance) = (speed) x (time). If you can't convert a distance to a scaled length, you may not know what 1400 m is (as opposed to 4000 m being 10 cm). T You can convert the calculated distance to an approximate value, but it is important to know that 4000 ÷ 400 = 10 cm. As a scale, notice that 1400 ÷ 400 = 3.5 If 400 m in 1 cm, then 4000 m is nothing. It would be better to make it 4,000 m.	
4 Make sure in a group T Share your thoughts with your group mates. Ask the students to think about which of the two intersections is the most appropriate place for grandmother's house and, if they were stuck on the way, which one is more appropriate for their group. Ask them to explain the reason for C We found two places where your grandmother's house is located. Which one is my grandmother's house? C. Why do I get two different answers? C. There is a supermarket near my grandmother's house Apparently. 5 Reflecting on the class	Ask the students to think about which of the two intersections is more appropriate for their grandmother's house and which one is more appropriate, and explain why. Find out how to find the distance or length on a scale in a group Check. If you don't know how to draw, you can check in the group 2 of 2 points, a suitable place for your grandmother's house Discuss in the group which one is the best.

T Looking back on today's lesson, a reflection sheet to fill out.	
5 Reflecting on the class T Looking back on today's lesson, a reflection sheet to fill out.	Distribute the reflection sheet. Recall your own turbulent feelings. Encourage them to reflect on the class.

<Stage 1>

(2) Where are we?	VTR Message:. My grandmother lives in the city of Daisen, and in August and March, we buy snacks and juice from a nearby store and watch the fireworks from her house. I remembered that I could hear the sound of the fireworks a few moments after they went off.
(1) Where to go?	Additional conditions: find the location of your grandmother's house
(3) How to get there?	I don't understand this, I don't have enough information

<Stage 2>

(1) Where to go?	Find out where your grandmother's house is
(2) Where are you?	VTR message Additional information: A map of Omagari city will be given away
(3) How to get there?	If you know the distance from the fireworks site to your grandmother's house

<Stage 3>

(1) Where to go?	Remembering information: distance = speed x time Find the distance from the fireworks site to your grandmother's house.
(2) Where are you?	Remembering information: distance = speed x time
(3) How to get there ?	If you know how fast the sound is going and how long it takes to hear the sound, You can find the distance

<Stage 4>

(1) Where to go?	Seeking the speed of the fireworks sound
(2) Where are you?	Remembering information: speed of sound = 331.5 x 0.6 x t (t is temperature) Additional information: The temperature on that day was 30 degrees in August and -2 de
(3) How to get there ?	How to go about seeking the speed of fireworks sound August: 331.5 + 0.6 x 30 = 349.5 m/s March: 331.5 + 0.6 x (-2) = 330.3 m/sec

<Stage 5>

(1) Where to go?	Find the distance from the fireworks site to your grandmother's house.
(2) Where are you?	The speed of the fireworks August: 349.5 m/s March: 330.3 m/s Additional information: August heard the sound after 4 seconds, March heard the sound after 12 seconds Reminder: distance = speed x time
(3) How to get there?	Find the distance from the fireworks site to your grandmother's house August: 349.5 x 4 = 1398 (m) March: 330.3 x 12 = 3963.6 (m)

<Stage 6>

(1) Where to go?	Find out where your grandmother's house is located using the map.
(2) Where are you?	on the map: from the fireworks site to your grandmother's house August: Approximately 1400m to 3.5 cm March: about 4,000 m → 10 cm
(3) How to get there	Check the map of August and March fireworks locations Locate your grandmother's house using a compass

<Stage 7>

(1) Where to go?	Find the location of your grandmother's house using a compass
(2) Where are you?	Draw two circles around the location of the fireworks in August and March You can find out where your grandmother's house is if your Grandmother's house was found in two places
(3) How to get there?	Which of the two places is more appropriate for your grandmother's house? Discuss in the group

(3) discussion of the class

Exploratory learning is akin to sailing to a new continent. All we can rely on are old documents and charts, compasses, positions of the sun, moon, stars, etc. Making the best use of the information available, they determine their current location (where are we?), their destination (where are we going?), and the best course to take (how do we get there?).

In the present case, the students (sailors) obtained a map (nautical chart) through a dialogue with the teacher (captain) after they had left the ship. For the first time, they were able to think of a route to their destination (stages 1 and 2).

Eventually, the students realized that they lacked the information to determine the route. Therefore, they asked the teacher for the temperature on the day of the fireworks and the time it took to hear the fireworks and used these information to determine the distance between the fireworks site and the grandmother's house (stages 3 and 4).

But that was not the goal. The goal was to determine the location of the grandmother's house on the map. Using a scale cue, the students determined the distance from the two fireworks sites to the house (stage 5).

The students realized that while they could determine the distance from two points, it was not enough to determine their position in the plane. They finally understood the role of the compass (stage 6).

There are two locations of the house determined using a compass. They were at a loss as to which one was the correct destination. So the students talked to each other to find out what to do. One student found important information in an ancient document. The students were able to locate the grandmother's house on the basis of this information (stage 7).

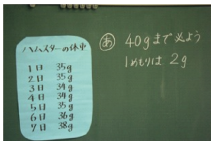
The students must have been filled with a sense of satisfaction and accomplishment after their learning (voyage). Through the voyage of the unknown, the students were able to read old

documents and charts (reading comprehension), determine their current location based on the positions of the sun, moon, and stars (thinking and judgment), use a compass and other tools (practical skills), use a compass (assessment), overcome rough seas with their peers (collaboration), and make further discoveries. You will have developed an attitude of challenge towards

The main question: "Where is your grandmother's house? Guided by the "I'm not a scientist," the children approached problem solving by collecting, analyzing, and structuring a variety of information. In the process, they recalled the relationship between the speed of sound, time, and distance, the relationship between temperature and the speed of light, etc., and used mathematical methods to find the key to solving the problem. At the same time, they understood how to read a map, the meaning of scale, how to use a compass, etc., and used them appropriately to reach the final goal. Here, knowledge and application are learned in unison, which leads to the development of mathematical views, ideas and attitudes. It was suggested that inquiry-based learning, guided by engaging questions, allows for a "balance of quality and quantity of learning".

Questioning	Formative Assessment
Main question: where is your grandmother's house?	Where we are going (what is the aim)
To find the location of grandmother's house What do you want to know?	How do we get there?
What should I do if I don't know the distance to my grandmother's house?	(How can I get closer to my goal?)
Do you know how fast the speed of sound is?	Where are we?
What happens to the speed of sound when the temperature is high?	What happens to the speed of sound
What was the formula for asking for distance?	

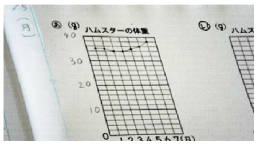
Appendix 2 Akita Chikuzan elementary school



❶ First, the weight of the hamst er is shown from a teacher. The weight is changing from 35 g into 38g .

❺ Immediately, the students have the following reaction. “It is easy to understand” “The change looks clear”.

❾ Teacher 2 is recording the situation of in what way each student is thinking on the seat table.



❷ This is the student notes. Almost all the students can draw the graph.

❻ After confirming the response of the students ,Teacher 1 asked why this graph is easy to understand, and make the student think about the key of it.
It was the turning point of the class.

❿ Teacher 1 is considering to a dopt whose ideas and in what order to improve group thinking.

❸ Secondly, Teacher 2 uses a different method of drawing the graph, and ask the student the following question. "I draw the graph like this , ho w about everyone else”

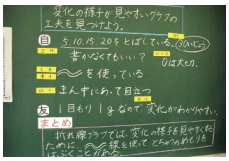
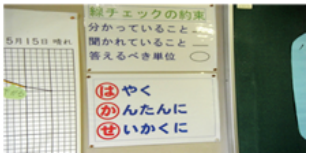
❼ The students are challenging the subject together. Teacher 2 is leading the class in this picture . And the role of Teacher 1 and Teacher 2 is exchanging .

⓫ T1 and T2, split up the students' thoughts process and exchange information. A seating chart is used in this scene.

❹ The teacher 1 asks the student the following question, “What do you think about this graph ?”

❽ Students summarize their ideas for problem solving. Meanwhile the two teachers grasp the process of student's thoughts.

⓬ If the student's comprehension is deemed to be low, the teaching staff will be able to help him/her. The mentor should be in the group or Employ paired activities. Group learning and paired activities help the understanding of students who tend to lag. At the same time, promote the deepening of the advanced student's thinking

<table>
<tr>
<td>⓭ goal: "Find a way to make the graphs easier to see the changes" from the students
The opinions were expressed in different ways.
"They're skipping 5, 10, 15, 20,
A weight should be no less than 30.
"Zero is important, so we can't skip it.
Where I left off, I used wavy lines.
"The graph is in the middle and stands out.
"One memory is one gram, so you can see the changes," etc.</td>
<td> 
⓱ Based on various opinions from the students, the lessons were summarized as follows. In a line graph, in order to see the state of change clearly, some records is omitted by using a wave sign. This will be utilized as criteria for the future learning</td>
<td rowspan="3"> 
This is a classroom notice. First knowing things. Second, what is being heard, and third pay attention to the unit of correct answer, the importance of these skills about problem solving is showed next to the blackboard. These criteria of math learning which the teachers want the student to know is showed as well.</td>
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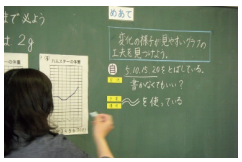
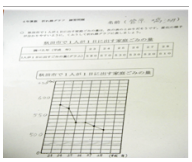
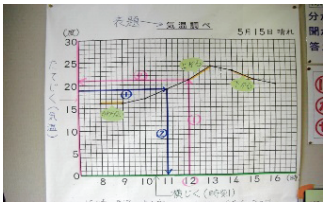
<td>  </td>
<td>  </td>
</tr>
<tr>
<td>⓮ The teacher uses a nameplate with a tag to record who said what kind of remark.</td>
<td>⓲ Next, assessment question was presented to confirm the degree of accomplishment of the lesson. It is a question to graph the change in the amount of house hold waste produced by one person in a day in Akita. It shows the actual data in the past 5 years</td>
</tr>
</table>

⓯ The teacher is preparing a nameplate of all the student next to the blackboard. A nameplate is functioning as the important tool to get the opinion of student individual, and conclude the group thinking.

⓳ Most students were able to draw the graphs accurately. This graph shows that the Akita City
shows that the amount of household waste is decreasing every year. Learning math to understand environmental issues. Observers understand the teacher's intention to connect.



㉑ In addition, the previous teaching materials and works have been displayed, and the teaching process of the whole unit is also clearly displayed. In this way, blackboard writing and classroom display is becoming important tool to improve the quality of learning

⓰ The teacher relates student's remarks, structures them and summarize personal thought into to group-thinking.

⓴ It is the state of the blackboard after the class. It has effect to visualize the student thinking and construct of group-thinking. Teachers are most concerned about writing on the blackborard for class planning.