

# NEWSLETTER



East-Asian Association for Science Education, Vol. 11, No. 3 September 30, 2018

## 2018 International Conference of East-Asian Association for Science Education



2018 International Conference of  
East-Asian Association for Science Education

The 2018 EASE will take place from November 29 to December 02, 2018 at National Dong Hwa University, in Taiwan. It is organized by the Department of Education and Human Potentials Development, National Dong Hwa University. The theme of the Conference is “A Dialogue Between the Local and the Global”, which marks the concern in science education including the features of local and the commons of global. Expecting to enrich the meanings and views in science

education through the dialogue between local and global scholars. Conducting by the theme, the keynote speeches, symposiums, paper presentations, workshops and others will be held in order to provide the chances for researchers, teachers, teaching material designers, and participants in popular science to share and communicate the knowledge and findings with each other.

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## Introduction

The 2018 EASE will take place from November 29 to December 02, 2018 at National Dong Hwa University, in Taiwan. It is organized by the Department of Education and Human Potentials Development, National Dong Hwa University. The theme of the Conference is “A Dialogue Between the Local and the Global”, which marks the concern in science education including the features of local and the commons of global. Expecting to enrich the meanings and views in science education through the dialogue between local and global scholars. Conducting by the theme, the keynote speeches, symposiums, paper presentations, workshops and etc..... will be held in order to provide the chances for researchers, teachers, teaching material designers, and participants in popular science to share and communicate the knowledge and findings with each other.

## Goal



The design idea of the conference logo was based on the theme “A dialogue between the local and the global” and also including the elements of the feature of East Asian culture and science. It could be explained into three dimensions. The first one is about the main visual: there are seven blocks with the “G” “L” “O” “C” “B” “A” “L” on the top cleverly combine the two words “GLOBAL” and

“LOCAL” which is consistent with the theme. The second one is that there are pictures on both side of the seven blocks. One side is the paintings from East Asia areas that are listed below in sequence from the left side to the right Macao, Taiwan, Japan, China, Hong Kong, and Korea to represent the LOCAL Culture. *The other side* shows the significant scientific discoveries and inventions through the years. They present Heliocentric Theory, Turing Machine, Transistor, Computer Program, Black Hole, Atomic Structure, Fractal Geometry, Chemical Bond, Phylogenetic Tree, Double Helix, and Nuclear Fission in right-to-left. The last one is the three extra blocks that represents as follows the Lab Course, The Application of Virtual Reality Device and the Outdoor Course.

# Enhancing Science Teachers' Competencies with Inquiry-Based Teaching Competency

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Graduate Institute of Science Education, National Changhua University of Education

Project funder: Ministry of Education in Taiwan

## Introduction

In Taiwan, new curriculum standards will be implemented in Grade 1-12 starting in 2019. The new curriculum standards highly demand inquiry and practice in all grade levels; therefore, enhancing science teachers' skills with inquiry competency is an urgent task for the Ministry of Education in Taiwan. There are several ways to approach this task, a few of which are through enhancing students as well as science teachers' lab skills and conducting various one-day workshops to enhance science teachers' inquiry-based competence, etc. Our project has different approach. Our goals are:

1. To prepare a group of seed teachers who are good at inquiry-based instruction.
2. To cultivate inquiry-based seed teachers to become future inquiry-based instruction coaches.
3. To construct a network for seed teachers and coaches to collaborate.
4. To implement inquiry-based curriculum in all levels of schools.
5. To enhance students' inquiry-based competence.

## Project

In order to reach these goals, strategies we used in the projects are as follows:

1. We recruited science teachers who are experienced in inquiry-based instruction as coaches in our project.
2. We conducted many recruiting workshops in north, central, south, and east of Taiwan in the beginning of school years to attract science teachers to join our project as seed teachers.
3. From September to November, we paired coaches and seed teachers together. Each coach would be assigned 3-4 seed teachers to work with for the entire year. Each coach would lead his/her own group and teach his/her own members of inquiry-based lesson plan, carry out their lesson-plan, and reflect on their teaching performances. Usually, each coach would conduct group meeting 10 times in a year.
4. During November-December, the project would hold workshops to teach all seed teachers as well as coaches how to design inquiry-based lesson.
5. In the end of February, we held an inquiry-based lesson plan contest. All the groups had to send their inquiry-based lesson plans for contest. All the lesson plans were reviewed extensively by science educators with inquiry-based research experiences. All written feedback would be sent back to the seed teachers who submitted their lesson plans.
6. During March-April, we held the second round of workshops in north, east, central and south regions to teach conducting reflective thinking on their inquiry-based teaching to all seed teachers and coaches. In addition, all the group members had to provide feedback on other members' teaching performances.
7. By the end of June, we held another inquiry-based teaching development [PD] contest. All the seed teachers can send their reflective journals during group meetings and workshops, classroom observations feedback, reflection of inquiry-based teaching, and finally, reflection of their own inquiry PD growth after participating in the project.
8. All the science educators evaluate seed teachers' PD materials submitted to the project, and gave extensive written commands to the seed teachers.
9. We invited all the coaches twice during the school year, during these gathering, introduced new teaching ideas and coaching

strategies to coaches, and encouraged them to share coaching ideas to each other.

10. At the end of August, we conducted results presentation gathering, through two days gathering, all the science teachers can share their inquiry-based instruction lesson plan, their PD outcome to all of seed teachers and coaches. We also invited science educators to present different kinds of Medals to the recipients who had won the lesson-planning design and PD. Seed teachers who accomplish all the requests from the project would also receive honorary certificate.

### Outcome

After conducting this project for four years, we have prepared more than 140 seed teachers and 30 coaches. More than 85 inquiry-based lesson plans have been developed. Each seed teacher filled a questionnaire regarding their perceptions toward inquiry-based instruction before and after the project. Results indicated that seed teachers improved significantly on their understanding of inquiry and their own competence of conducting inquiry. In terms of skills in inquiry-based teaching, these seed teachers felt that their confidence of guiding inquiry-based instruction has increased significantly after attending this project. During the process, many showed appreciation towards the help of their coaches. Questionnaires from these seed teachers' students indicated that they noticed changes in their teacher's teaching, which increased the student's motivation toward science learning notably.

All the coaches used very creative ways in helping their seed teachers, such as: web-meeting, line (communications application), and face-to-face meeting. These coach's contribution really helped and supported seed teachers to make important improvements.

Finally, we tried to bridge the gap between theory and practice, science educators and school teachers. When it comes to theory, a good inquiry-based teacher needs to learn how to design inquiry-based lesson, implement and reflect the lesson and find way to improve the lesson next time. These features have been embedded into the workshops, contests and assignments for seed teachers. All the workshops were presented by both science educators and experienced school teachers. All the workshop would consist of some theory, then followed by many hands-on activities. Finally, the project recruited all the science educators who are experienced in inquiry-based research. They played as contest reviewers, and their specific and expert written commands really helped seed teachers improve their inquiry-based teaching performances.

We hope to continue using this model to help more Taiwanese science teachers to develop their long-lasting inquiry-based teaching competence in the near future.



# The in-service primary science teachers' understanding of the nature of science in Beijing

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The science education reform in China has been paid more and more attention to the cultivation of scientific literacy of all students. The word “scientific literacy” is mentioned with most frequency in the compulsory education science curriculum standards in China.

As one important component of scientific literacy, the “nature of science” was written for the first time in the new version of primary science curriculum standards, which was issued by The Ministry of Education of the People's Republic of China in 2017.

The curriculum standards define the scientific literacy as follows: “Scientific literacy is to understand the necessary knowledge of science and technology and their influences on society and individual, to know the basic scientific methods, to understand the nature of science, to establish scientific ideas, to cultivate scientific spirit, to deal with practical problems, and to participate in public affairs”, which puts the nature of science beside the scientific methods and scientific ideas. It also points out that “The organization and the teaching of primary science curriculum should balance the needs of the intellectual, the social, and children, and put the nature of science, scientific thinking, scientific knowledge, scientific method, in the learning content embedded in the popular science theme for children.....to protect the students' curiosity and desire for knowledge, stimulate students' interest in studying science, and guide them to explore actively.....”.

A teacher cannot teach what he or she doesn't know, so if a primary science teacher doesn't know the meaning of NOS, s/he cannot teach it, let alone cultivate it in the students. Considering the fact that there is no definition of the nature of science in the Primary Science Curriculum Standard in China, the first step for us primary science teacher educators is to construct a framework showing the important aspects of nature of science for primary teachers' science teaching. Our theoretical research, based on the existing researches, tried to give a definition of the nature of science suitable for the primary science teaching. Secondly, in our empirical research, the View of Nature of Science Questionnaire was conducted in order to collect the primary science teachers' views of nature of science and some of the misconceptions, such as “Scientific models are true replications of real situations” were revealed as well. Their understanding of the nature of science served as the baseline and need some amendment and modification. Considering the fact that the nature of science, though important, is not defined and without any instructions in the Primary Science Curriculum Standard, it is impossible for primary science teachers to add an extra content in the already crowded science courses. So, the third step in our research was to find some way that can integrate the content of the nature of science in the current primary science curriculum and designed and implemented curriculums which emphasize the NOS. The curriculum was based on the technology and engineering areas, which was the 4th area besides the physical science, bioscience and geo-cosmic science in the primary science curriculum. Most of the primary science teachers had improved their understanding of the nature of science after attending our research and some of them will translate their understanding of nature of science into teaching practice in future.

The research is just an attempt to improve the understanding of NOS on the part of the primary science teachers and there is a long way to go before the primary teachers can design and implement their own NOS science classes with their reflection and the continuous instruction from the researchers.

**Keywords:** nature of science, scientific literacy, scientific inquiry, primary science curriculum standards, curriculum design

and implementation

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## The U-STEMist Scheme:

# A Joint University Collaboration to Develop Students' Competence and Leadership in Promoting Integrated STEM Education

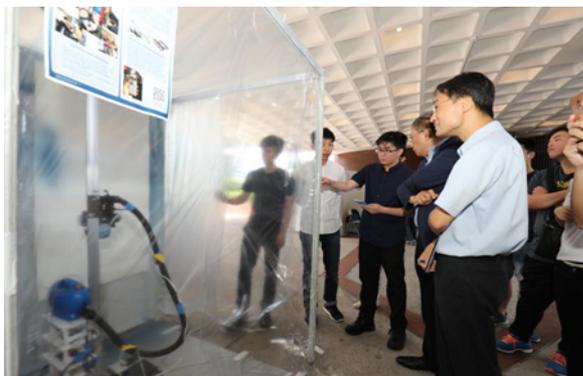
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Valerie W.Y. Yip  
The University of Hong Kong

With the increasing demand of Hong Kong to develop STEM professionals and literates for sustaining economic development and addressing societal and environmental problems through innovative technology, it is widely conceived to be essential to infuse STEM education into the existing school curriculum, from primary to secondary level. This entails complementary efforts by both STEM and education faculty of universities to develop undergraduates' and pre-service teachers' competence and leadership in STEM education. The U-STEMist Scheme, a three-year project, is launched as a joint-institutional response to address this emerging need. Four university partners are involved in launching this project, namely the Education University of Hong Kong, University of Hong Kong, Chinese University of Hong Kong and Hong Kong Polytechnic University.

This project is innovative in that it encourages STEM undergraduates and pre-service teachers from the four university partners to cross institutional and disciplinary boundaries, and collaborate and learn from their peers to achieve synergy in STEM problem solving. The implementation of the project is based on a two-stage model. The first stage is to enhance the university students' understanding of STEM through attending joint-university STEM lectures/workshops outside their majors. The second stage involves the formation of U-STEMist project teams comprising students from different STEM disciplines and universities. Each U-STEMist team undertakes a STEM project to address the needs of their clients who may either be needy people in the community or school students. For this purpose, each U-STEMist team works with either a social service provider or a primary or secondary school, under the supervision of a university lecturer from one of the four universities. The project takes place in two cycles, one in 2017-18, and the other in 2018-19.

The first cycle of the project was completed in Jul 2018. Our evaluation findings show positive feedback from both the U-STEMists and community partners. The U-STEMists appreciated the opportunity of working with their counterparts from other universities to serve the needy. The community partners specifically commended the positive working attitudes of the university students and the innovative ideas these students brought to their organizations. Both parties suggested improvements to the project in the second round. These include extending the project period, providing more support to the U-STEMist teams to overcome technical difficulties in producing their products, and better matching of the U-STEMist teams and their community partners to narrow the expectation gap between the two parties. Overall, the U-STEMists have lived up to the defining motto of this Scheme: "To learn, to serve and to thrive."





# The four motions of the earth

Hisashi Otsuji  
Toyo University

In this short letter, I would like to propose a curriculum, where four motions of the earth are properly and consciously arranged from the elementary to senior secondary levels. People who immediately recognize the four figures below are highly literate as earthlings. Earth's rotation (Figure 1) starts to relate to a science unit from Grade 3 but the topic is treated as the sun's diurnal movement and mostly by leading in the kids play of shadow. In the unit, the period given is 24 hours and defined as a day. The earth's orbit (Figure 2) causes the seasonal changes. In our country, Grade 4 students study the seasonal growth of plants with continuous observation. Also, the difference in solar altitudes due to the seasons and the change of visible night sky are learned in other grades. Considering the leap year, one year has 365.25 days. The period of rotation is 23:56 relative to the background stars, and taking into account the earth's orbit, 24 hours is redefined as a "solar day." In both cases, the point of teaching is how to transfer the students' viewpoint to the outside of the earth. Actually, the orbit is an ellipse and the sun changes its position periodically during the year but detailed explanation is avoided here.

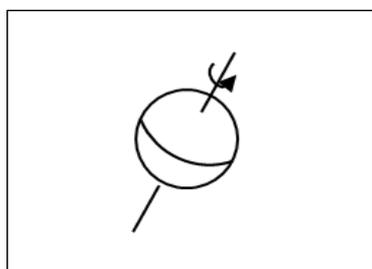


Figure 1

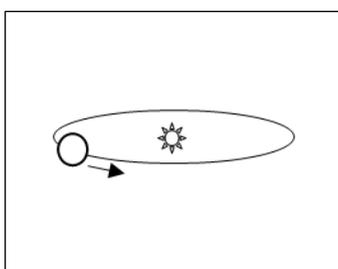


Figure 2

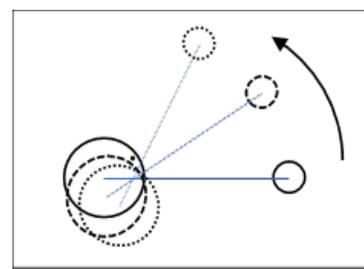


Figure 3

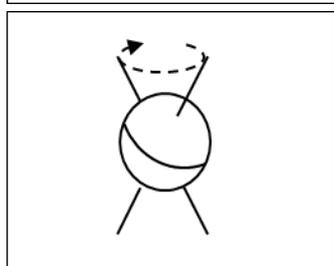


Figure 4

Recent news about some of the natural disasters in Japan may be broadcasted to your countries. Typhoon Jebi landed with a strength of 950 [hPa] in the Tokushima Prefecture at about noon on September 4 and relanded in Kobe City at around 14:00. The typhoon was characterized by a strong wind, which was recorded as the strongest wind speed in various cities. Due to the high tide, it caused serious damage to Kansai Airport. When we consider a storm surge, it is necessary to think about the drop in atmospheric pressure and the tide. The time of the high tide was 16:06 at Kobe and 17:17 at Kansai Airport Island. For every 1 [hPa] drops in pressure, the sea level increases by 1[cm]. Although it was close to the neap tide, the highest tide level, coupled with the shape of the bay and the direction of the strong winds, was recorded at the back of Osaka Bay. Thus, when we think about a storm surge or avoiding a high tide disaster, we need to consider not only the change in barometric pressure and tide levels but also strong wind and topography. This was the lesson of Typhoon Jebi.

The moon's movements are involved in the tides. Basically, we observe tidal changes in sea levels twice a day. However, many students experience difficulty in imagining these changes. The sea level close to the moon rises because of the latter's

gravitational attraction. We experience a high tide when the earth's rotation moves our location on the earth's surface toward the moon (Figure 1). One of the two tides is easy to imagine. However, it is difficult for students to imagine that the sea level rises when our location moves us away from the moon. Herein, we should notice our prejudice about the Earth as the center of the moon's revolution. The earth and the moon orbit each other around a barycenter (common center of mass), which lies about 4,600 [km] from the earth's center (Figure 3). Even on the other side of the earth facing away from the moon, the sea level rises due to the centrifugal force of the earth. Not only the movement of the moon but also the movement of the earth caused the two tides a day. The moon and the earth complete one revolution relative to the stars in about 27.3 days. The tide influences all occupations, including fishing, related to the sea. In addition, the movement is similar in principle to the discovery of extrasolar planets. The existence of extrasolar planets is strongly related to the existence of extraterrestrial life, about which children are enthusiastic. Since the first extrasolar planet was discovered in 1995 by Michel Mayor from Switzerland, 3,824 more extrasolar planets (and 2,859 sun-like stars) have already been recognized. However, in school science, this content appears in earth science classes at the senior secondary level and its registration rate is only about 1 [%] in my country. Since the movement (Figure 3) is closer to our everyday life and to the development of the latest science, we should reconsider teaching the movement at a lower grade level as the third motion of the earth.

The fourth periodic movement of the earth prescribes the "one year" of all lives on the earth and it is also related to the landmark of the orientation of the North Star. The starting point of a year for all lives in the northern hemisphere is the vernal equinox. On this day, the length of the day begins to exceed the length of the night. The annual cycle of the sun from one vernal equinox to the next is called one "solar year (tropical year)," which is equal to 365.2422 days. The Gregorian calendar (365.2425 days) is also targeted for this same length. However, the earth really takes 365.2564 days to complete one full orbit around the sun with respect to the fixed stars (the sidereal year), which is longer than the solar year. Here, we can ask students what makes the difference. The preconception that the vernal equinox is immovable disturbs their minds. The vernal equinox is moving slowly every year and completes a cycle every 25,700 years. This phenomenon is caused by the fourth motion, i.e., the precession, of the earth. The ancient Greeks were aware that the motion caused the movement of the polar star. The motion is also related to the calendar, which is the basis of our lives. We should reconsider the school curriculum with a spiral structure and take into account the four movements of the earth.

At closing time, I will give you a short quiz.

What is the speed of the earth's rotation at the equator, where the radius of the earth is 6,400 [km]?

(A: 1,675 [km/h] = 465 [m/s])

How fast is the earth's orbital motion when the radius of the earth's revolution (the distance to the sun) is 150 million [km].

(A: 30 [km/s])

How fast is the solar system moving in the galaxy?

(A: 240 [km/s])

# Overseas Science-Based Touring with Edutainment Journey

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Nelson C. C. Chen

Division of Technology Education, National Science and Technology Museum

The newly-formed term edutainment, a combination of prefix of education and the suffix of entertainment, was used as early as 1954 by Walt Disney to describe the True Life Adventures series. The noun edutainment is a neologistic portmanteau used by Robert Heyman in 1973 while producing documentaries for the National Geographic Society. It was also used by Dr. Chris Daniels in 1975 to encapsulate the theme of his Millennium Project. Edutainment is also a growing paradigm within the science center and children's museum community in the United States, as well as in many other locations such as the zoo or a botanical garden. Educational locations such as these are constantly looking for new and innovative ways to reach the surrounding public and get them interested in areas such as the fine arts, science, literature, and history. Additionally, field trip visits to these educational places provide participants with interactional stimulus to learn about the science content offered there.

Merging with the inner exhibitions, National Science and Technology Museum (NSTM), Kaohsiung, Taiwan has been running a Science-Based Touring (SBT) with edutainment in Singapore and Malaysia since 2017. Rather than a common journey for publics, SBT was conducted in accordance with the local scenic spots. SBT designed various on-site hands-on activities to interpret what have been seen or observed.

The reasons of why SBT was conducted are to Increase the funds for science museum, to Incomes and the numbers of visitors calling on NSTM and the quality of service. The main targets we served are families since the parents can take care of his/her own kids so that so the man powers of being a baby sister. There were total of 4 batches of SBT camps, consisting more than 80 people participating, being conducted since 2017. Respective hands-on activities at different venues in accordance with the real-world circumstance. Aside from the sightseeing, photo shooting, shopping, having yummy food, as the common touring groups have been doing, the main purpose of SBT is to interpret what have been seen and observed with lots of props and hands-on activities. The most changeable and difficult things are how to meet the need and expectation for parents and kids respectively since the charge of SCB is usually higher than that of common touring. Doubtless, Meaningful education for kids are the most essential elements that SBT should focus on. For instance, an 8-day SCB journey in Singapore are as below:

Day 1: A hand-made Kaohsiung local sundial to measure the time of local time before flight taking off.

Day 2: To personally have the hands-on experience how a science demo lab of National University of Singapore (NUS) runs the popular science education. To closely observe how similarity of flap between the bird and aircraft when taking off and landing. A hand-made paper plane is conducted when calling on the bird park.

Day 3: Observe the Artificial Dike at Eastern Coast. Personally, observe how the dike works to prevent the sand from being washed away. A hands-on experiment of wave diffraction was conducted at site. Also visiting the various scenic spots of traditional heritages around Singapore are for some selfie photo at the site. Moving to the Sky Green Farm to admire how Singaporeans use the limited land resource to plant vegetables vertically. How the government conserves the wetland to protect the diversity of biology.

Day 4: Call on Science Center Singapore to have a free or guided touring of Science

Science Demonstrations, Exploration of Tinkering, Kinetic Garden, Track of Astronomy map, Hands-on and hands-on Magic saving box.

Day 5: Art Science Museum: Dedicated self into an environment of the saying so-called "Imagination is more important than knowledge" quoted by Albert Einstein (1879~1955).

Day 6: S.E.A. Aquarium Museum: To explore if any aquatic animal that can move backward; To look for if any aquatic animal

that can blink and the relationship between fish-like lock and the real fish; And to find out if any aquatic animal that can disguise itself for hiding.

Day 7: Spiral-like water basin: to explore how come the water is moving like a spiral spinning motion; To explore how come the water fall is unstable that can be facilitated with a hands-on gyroscope to interpret the phenomenon of precession.

Day 8: Optional Common Touring: To have a free touring at Universal Studio; To explore at Night Safari; And to enjoy having a culture touring at Alab Street, Haje Street, China Town, Marina Bay, Super Trees, yummy foods...etc.

A POE2C(Predict-Observe/Operate-Explain-Compare-Contest) teaching model was applied to encourage the campers to sustain the learning motivation and interesting. A semi-structure open-ended questionnaire were used to survey how the SBT was evaluated by the participants. SBT is to merge the sightseeing with science learning to achieve the goal of edutainment and scientific concepts. More than 80 participants from families attended this kind of outing science activity in winter and summer vacation since 2017. SBT can effectively achieve the performance of NSTM, including the income, numbers of participants and quality of service.

A highlight of whole activity is presented in briefing as attached:

<https://www.youtube.com/watch?v=Bn9j3JZZFn0&feature=youtu.be>



I, with my colleagues and graduate students, attended the XVIII. IOSTE Symposium, which was held in Malmö, Sweden during August 13-17, 2018. Malmö University and Stockholm University co-hosted the symposium. This was our first visit to the IOSTE meeting and we were so excited. We flew to Copenhagen, Denmark from Korea and took a train to Malmö by crossing a beautiful bridge, Øresundsbron, which connects two cities over the sea.



Figure 1. Malmö University and roundtable session

One of the reasons I decided to attend the IOSTE meeting was because of the mission statement of IOSTE: “IOSTE (International Organization for Science and Technology Education) identifies science and technology education with the real and changing needs of humankind as a whole and with specific needs of its component communities and nations.” IOSTE believes that S&T education should 1) Highlight S&T education for citizenship and for informed, critical, and active participation in democracy, 2) Stress the relationship between science, technology and society, 3) Emphasize the cultural and human values of S&T, 4) Promote equity in S&T and S&T education, 5) Advance S&T education for a just and sustainable development and consider how S&T education can contribute to the fight against poverty, discrimination and injustice, 6) Encourage the peaceful and ethical use of S&T in the service of humankind, 7) Encourage cultural diversity and international understanding through S&T education, and 8) Stimulate international collaboration in the domains of research and development and promote cooperation with other international organizations (see website: <http://www.ioste.org/>). As a SSI (socioscientific issues) education researcher, I felt really being connected with the mission statement and so I was very glad to meet the people who shared the mission.

Today, IOSTE has members from about eighty countries, and is officially recognized by UNESCO as a non-governmental organization. This theme of the symposium this year was “Future educational challenges from a science and technology perspectives.” Under the theme, four keynote speeches were provided by Dr. Radhika Gorur at Deakin University, Melbourne; Dr. Ralph Levinson at University of London; Dr. Kathryn L Kirchgasser at University of Kansas, USA, and Dr. Steve Alsop at York University, Canada. I as a group joined a roundtable session, which focused on “Science and Technology Education in response to global, socio-environmental challenges” organized by Laura Colucci-Gray and Jesper Sjöström. We shared different models of teaching and education, which take into consideration the global, socio-environmental challenges.

Besides the conference program, we enjoyed various cultural events. First, when we arrived at the Malmö City, Malmö festival (called “Malmöfestivalen”) took place in the heart of the Malmö City. Since our hotel was located in the city, we could experience a variety of street foods, music and culture. The festival was very energetic. Second, IOSTE arranged a cultural tour

to Ystad, a part of the beautiful region of Skåne in southern Sweden. I strongly recommend you to visit Ales Stenar, which is mystical monument consisting of 59 massive boulders arranged in a 67-meter-long outline located 32 meters above sea level with a magnificent view over Österlen's hilly landscape and the Baltic Sea. And the third, the Mayer of Malmö city invited all the participants to the city hall and provided authentic Swedish dinner. It was the memorable moment in my life!!



**Figure 2. Ales Stenar in Ystad and conference dinner at the city hall**

Next IOSTE symposium will be held in Daegu, South Korea in 2020. We expect that the symposium will enable you to share your research with an international research community and to engage in discussion about important issues and challenges in science and technology education. I hope to see EASE members at the next IOSTE symposium!!!

Da Yeon, Kang  
Seoul National University

The 74th academic conference of the Korean Association for Science Education (KASE) was held July 27-28, 2018 in Daegu, Republic of Korea. The theme of the conference was 'Past, Present, and Future of Science Education in Korea'.

Every time I attend the KASE conference, I gain positive and productive experiences from many studies conducted by researchers from diverse backgrounds. KASE is a kind of public forum for all of participants (practitioners, students, and researchers) in the field of science education research in Korea. Brilliant and creative studies by junior researchers, theoretical studies by senior scholars, and keynote presentations and symposiums all helped me to improve my understanding of current research trends.

Specifically, the opening symposium of the conference made the biggest impression and will be a lasting memory. The panelists for the symposium were all kind of “Founders” of Korean science education research. It was interesting to hear them discuss practical issues facing Korean science educators today. It was very worthwhile to hear from senior researchers who are working in the front lines of policy making, teacher training, and curriculum development. This symposium offered me a precious opportunity that helped to foster interaction and communication with researchers in the senior generations. The symposium really embodied the theme 'Past, Present, and Future of Science Education in Korea' by inviting senior colleagues to discuss current issues related to science education with an audience of future generation researchers.

As always, the summer KASE conference was interactive and motivated me to move forward in doing my research. I was inspired to attend this conference even though I had no presentation scheduled. Hopefully more researchers can attend the upcoming international KASE conference this winter and leave with great memories like me.

# The 5th Meeting of the Asian Network to Promote Teacher Education on ESD

Japan Society for the Promotion of Science Core-to-Core Program  
Formation of International Center of Excellence to Promote Teacher Education on ESD

The 5th Meeting of the Asian Network to Promote Teacher Education on ESD:  
Towards Achieving the Sustainable Development Goals through Education  
Co-organized by Okayama University, Indonesia University of Education, JSPS and UNESCO Bangkok  
(Bandung, 28 – 29 October 2018)



## 1. Background

Education for Sustainable Development (ESD), which UNESCO leads and coordinates globally since 2005, is currently promoted worldwide through the Global Action Program (GAP) on ESD as well as through the Sustainable Development Goal 4 on education under Target 4.7. ESD is also a vital means of implementation for the 2030 Agenda for Sustainable Development and a key enabler of all the Sustainable Development Goals, as reaffirmed by the United Nations General Assembly in its resolution 72/222.

Okayama University holds the only UNITWIN/UNESCO chair program on ESD in Asian countries and is a key member of the Okayama Regional Centre of Expertise on ESD established by the United Nations University. It has energetically promoted teacher education for ESD, and in November 2014 at the UNESCO World Conference on ESD, it cooperated with the International Network of Teacher Education Institutions for Reorienting Teacher Education to Address Sustainability to organize the Eighth International Conference of the network. Moreover, together with RCE Okayama, Okayama University developed its teacher training programs focusing on pre-service and in-service teachers in cooperation with the Associated Schools Project University Network (ASPUnivNet), a network of 20 universities in Japan that works to support UNESCO ASP schools. These tangible results led the Okayama ESD Project to win the UNESCO/Japan Prize on ESD in September 2016. Moreover, Okayama University received the special prize in the First Japan SDGs Awards in December 2017.

Building on the above achievements, Okayama University launched the core-to-core program (2017-2019) “Formation of International Center of Excellence to Promote Teacher Education on ESD” with an aim to bring together teacher education institutions from different countries in Asia to jointly develop teacher training programs on ESD based on Lesson Study, a collaborative approach to learning and professional development for teachers. In addition to Okayama University (Japan), Indonesia University of Education (Indonesia) and other universities (China, Republic of Korea, Lao PDR, Mongolia and Myanmar) are the core institutions of the program. The program also aims to establish core institutions on teacher education for ESD, create academic networks for ESD and foster future generations of ESD researchers. Through four meetings of the Asian Network to Promote Teacher Education on ESD held in Okayama, Kyoto, Ulan Bator and Toyama since June 2017, the program members have discussed the integration of teacher education and ESD and the development of frameworks and recommendations to reorient teacher education in Asia to address sustainability.

Also beginning in 2017, UNESCO Bangkok, together with the Southeast Asian Ministers of Education Organization Secretariat (SEAMES), embarked on the project Sustainability Begins with Teachers: Integrating ESD in Teacher Education in Southeast

Asia with the financial support of the Government of Japan. The project led to the creation of the Southeast Asia ESD (SEA-ESD) Network, a network of teacher educators committed to ESD from 25 teacher education institutions and universities across Southeast Asia.

In order to bring together the participants of the two networks to exchange experiences and provide further discussion opportunities for the project members, Okayama University and Indonesia University of Education jointly propose to organize, in cooperation with JSPS and UNESCO Bangkok, the 5th Meeting of the Asian Network to Promote Teacher Education on ESD: Towards Achieving Sustainable Development Goal through Education in Bandung on 28 – 29 October 2018.

## **2. Objectives**

- 1) To provide a forum for the Asian Network members and the SEA ESD network members to exchange their experiences in integrating ESD in teacher education.
- 2) For the Asian Network members to report on the progress made in the joint research “the Development of Frameworks of Teacher Education Program on ESD based on Lesson Study”.
- 3) To discuss a tentative framework of a teacher education program on Lesson Study-based ESD. The framework will be proposed at the Asia-Pacific Regional Meeting of Teacher Education on ESD planned to be held in Okayama, Japan in November 2018, supported by the Japanese National Commission for UNESCO, and in cooperation with UNESCO Bangkok.
- 4) To provide opportunities for teacher educators in Bandung and Indonesia to interact with teacher educators from other countries in Asia, learn about the situations on the ground in those countries, and develop deeper understandings of regional and global solidarity and partnership.

## **3. Expected outcomes**

- 1) The progress reports of the joint research shared and the correction points and future tasks needed clarified.
- 2) A tentative Asian framework of teacher education program on Lesson Study-based ESD prepared.
- 3) Collaboration among the participating countries to jointly promote the SDGs through ESD strengthened.

## **4. Participants**

Participants will come from teacher education institutions and university faculties in charge of teacher education in Cambodia, Indonesia, Japan, Republic of Korea, Lao PDR, Mongolia, Myanmar, Philippines and Thailand. There will be 7 participants from Japan, 8 and more participants from Indonesia, 2 participants from the Republic of Korea, Lao PDR, Mongolia, Myanmar and Thailand and 1 participant from Cambodia and the Philippines. Moreover, a participant will come from UNESCO Bangkok Office.

## **5. Tentative time, Venues and Program**

28 – 29 October 2018 at the Indonesia University of Education and field visits to Bandung district

Day1: keynote presentations, sharing country experiences and discussion, welcome function

Day2: field visits and excursions, wrap up, farewell function

## **6. Extended Program**

In order to announce a joint research results of the JSPS Core-to-Core Program and provide further discussion opportunities for the program members, Okayama University and Indonesia University of Education jointly propose to organize an extended program on 26 – 27 October 2018, in cooperation with JSPS.

Day 1: general lecture on ESD for prospective teachers and Indonesia University of Education faculty member discussion

Day 2: mini symposium on ESD at MSCESIS 2018 Seminar <http://msceis.conference.upi.edu/2018/>

## **7. Contact Information**

For more information, please contact with Mr. Agus Fany Chandra Wijaya of Indonesia University of Education.

[agus.fany@gmail.com](mailto:agus.fany@gmail.com)

# Announcing International conference of KASE 2019, we welcome you to Korea in 2019

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Young-Shin Park  
Chosun University

I am Young-Shin Park, a chair of KASE conference in Korea and I am happy to announce the upcoming international KASE (Korean Association for Science Education) conference in Korea National University of Education in Cheongju, Korea. **The theme of 2019 KASE international conference is ‘Talking about science: Language, discourse and communication in science education’** where you can taste how we can represent science teaching and learning through language. We have invited experts in this field and you cannot wait to meet them in Korea (Jan 24/Thursday-Jan 26/Saturday)

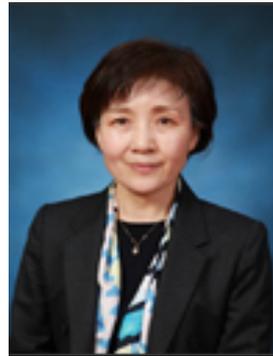
## Invited speakers



Michael J. Ford  
National Science Foundation,  
USA



Maria Pilar Jiménez-Aleixandre  
Universidade de Santiago de  
Compostela  
Spain



Heui-Baik Kim  
Seoul National University  
Republic of Korea



Mijung Kim  
University of Alberta  
Canada



Seungho Maeng  
Seoul National University of  
Education  
Republic of Korea



Mauro Mocerino  
Curtin University  
Australia



Jonathan Osborne  
Stanford University  
USA



TAN Aik Ling  
National Institute of Education  
Singapore



Lei Wang  
Beijing Normal University  
China



Per-Olof Wickman  
Stockholm University  
Sweden



Yamaguchi  
Kobe University  
Japan



Wen-Jin Yang  
National Taiwan Normal  
University  
Taiwan

### **About the conference site, Korea National University of Education (KNUE)**

KNUE is a South Korean national university which specializes in pre- and in-service teacher training and educational research. It comprises four colleges and three graduate schools. The student body consists of about 2,400 undergraduate and 3,300 graduate students. The university is widely regarded as the top South Korean university in the field of education. It was founded in 1984 based on the Article 43 of the Higher Education Act and the Presidential Decree on the Establishment of Korea National University of Education. As the most prestigious national institution for teacher training and educational research, it is the only university in South Korea that collectively prepares kindergarten, primary school, and secondary school teachers. It also provides continuous teacher education and conducts comprehensive educational research. For more KNUE, please visit here (<http://en.knue.ac.kr/>)



As usual, you will meet many professional scholars from abroad and share ideas with them. You will taste great food of Korea and its culture. I hope you cannot miss this chance. Please bring your friends to experience energetic international conference of science education in Korea. Do not miss it. Hope to see you in Korea. Abstract due date will be on October 30! If you have any question, do not hesitate to contact me ([parkys@chosun.ac.kr](mailto:parkys@chosun.ac.kr)).

# Upcoming conferences

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## **The 5th Meeting of the Asian Network to Promote Teacher Education on ESD**

October 28-29, 2018 @ Bandung, Indonesia

This conference aimed at providing a forum for the Asian Network members and the SEA ESD (Southeast Asia Education for Sustainable Development) network members to exchange their experiences in integrating ESD in teacher education. Through the conference, the Asian Network members will have a report on the progress made in the joint research “the Development of Frameworks of Teacher Education Program on ESD based on Lesson Study”. To discuss a tentative framework of a teacher education program on Lesson Study-based ESD, the framework will be proposed at the Asia-Pacific Regional Meeting of Teacher Education on ESD planned to be held in Okayama, Japan in November 2018, supported by the Japanese National Commission for UNESCO, and in cooperation with UNESCO Bangkok.

Participants will come from teacher education institutions and university faculties in charge of teacher education in Cambodia, Indonesia, Japan, Republic of Korea, Lao PDR, Mongolia, Myanmar, Philippines and Thailand. There will be 7 participants from Japan, 8 and more participants from Indonesia, 2 participants from the Republic of Korea, Lao PDR, Mongolia, Myanmar and Thailand and 1 participant from Cambodia and the Philippines. Moreover, a participant will come from UNESCO Bangkok Office.

### **Conference Date**

Day1: keynote presentations, sharing country experiences and discussion, welcome function

Day2: field visits and excursions, wrap up, farewell function

**Inquiries to Mr. Agus Fany Chandra Wijaya of Indonesia University of Education ([agus.fany@gmail.com](mailto:agus.fany@gmail.com))**

## **2018 International Joint Conference of East-Asian Association for Science Education and Association of Science Education in Taiwan**

November 29 – December 2, 2018 @ National Dong Hwa University, Hualien, Taiwan

2018 EASE & ASET International Conference will be held at the National Dong Hwa University, Hualien in 2018. The theme of the conference is a dialogue between the local and the global. This conference is co-hosted by EASE and ASET, and there are a number of prominent scholars around the East-Asian regions. The paper submission is already opened and the deadline of submission is 1 July.

### **Keynote Speakers**

Cheng May Hung, The Education University of Hong Kong

Yoshisuke Kumano, Shizuoka University

Jeonghee Nam, Pusan National University

Mei-Hung Chiu, National Taiwan Normal University

Hu Wei ping, National Demonstration Center for Teacher Training Development

### **November 29 - December 2, 2018**

National Dong Hwa University, Taiwan

For more information, visit:

<http://2018ease-aset.ndhu.edu.tw/en/>

Or contact:

**Chia-Ling Chiang**, [clchiang@mail.ndhu.edu.tw](mailto:clchiang@mail.ndhu.edu.tw)

**2019 KASE (Korea Association for Science Education) International Conference**

**Talking about science: language, discourse and communication in science education**

January 24-26, 2019 @ Korea National University of Education, Cheongju, Korea

The 2019 KASE international conference, one of the largest conferences in science education in Korea, will be held in Cheongju, renowned as the oldest printing techniques in the world. The main theme of the conference is “talking about science: language, discourse and communication in science education” and there will be a number of keynote sessions lectured by prominent scholars in the world.

**Conference Website:** <http://www.koreascience.org/>

**Inquiries to:** [karse@knue.ac.kr](mailto:karse@knue.ac.kr)

**The First Ocean Park International STEAM Education Conference 2019**

Organized by: Ocean Park Hong Kong

Co-organized by:

Education Bureau, The Government of the Hong Kong Special Administrative Region

The University of Hong Kong (Faculty of Education, School of Biological Sciences and Department of Geography)

Hong Kong Association for Science and Mathematics Education

Ocean Park Hong Kong is proud to present “The First Ocean Park International STEAM Education Conference 2019” for teachers and education professionals. It will be Asia’s first international conference focused on STEAM education knowledge-sharing in a live edutainment setting.

Founded in 1977 as a non-profit organization, Ocean Park Hong Kong has evolved from a home-grown theme park into a world-class attraction that embraces education and conservation along with entertainment. Over the past 25 years, over 900,000 students from kindergarten to university levels have participated in Ocean Park education programs inspired by experiences with animals and nature, as well as ride attractions.

Uniquely positioned as a resource hub for global STEAM education in practice, Ocean Park Hong Kong hopes to provide through this Conference an international research and collaboration platform for educators from Hong Kong and overseas. The Park’s onsite animal and nature resources and attractions offer inspirational STEAM education opportunities and partnerships through knowledge exchange and capacity building. Ocean Park Hong Kong is delighted to share its resources and expertise to facilitate the development of STEAM education in the region by creating a STEAM practice community for educational professionals worldwide.

The First Ocean Park International STEAM Education Conference 2019 aims to attract international practitioners, researchers and professionals interested in co-creating an exciting future in STEAM education.

Admission to this Conference is free and open to teachers and education professionals from Hong Kong and overseas but pre-registration is required. Program details including call for submission and registration method will be announced shortly on our website.

**Website:** To be confirmed

**Inquiries to** [STEAM@oceanpark.com.hk](mailto:STEAM@oceanpark.com.hk)

# Executive members 2016-2018

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President: May CHENG May Hung

Vice-President: Yoshisuke Kumano

Vice-President: Young-Shin Park

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Treasurer: Sung-Tao Lee

Secretary of Headquarter: Zhi Hong Wan

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