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# Introduction of China mainland
## science education research representative work in 2017

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# High school students' interactive art exhibition:
## Outputs of STEAM club activity

An interactive art exhibition, which combines science and art created through one year of STEAM club activities, was held at Seoul Science Center from November 5th to 12th. A total of 31 students including 22 students from A-STEAM club in Kaywon High School of Arts and others from Seoul Visual Art gifted Association, were introduced in this exhibition. Hee-Sung Song (art teacher), a chief teacher of A-STEAM club at Kaywon High School of Arts, has tried various lessons for arts high school students to try to integrate science, technology and art through club activities for the last 5 years. In this class, students emphasized the transformation of ideas to explore the relationship between science, technology and art, and to create creative ideas through new ways of thinking.
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# Upcoming conferences

January 25-27, **2018 International Conference of KASE** in Yongin, Korea
June 19-21, **2018 International Science Education Conference** in Singapore
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# Introduction of China Mainland

## Science Education Research Representative Work in 2017

**Yanning Huang**
Capital Normal University

The revision of China's high school curriculum standards means the start of a new round of curriculum reform. The discussions of content, connotation, progression and practice of disciplinary are hot topics in domestic science education. Relevant fundamental research, such as the development of subject core ability, learning progress of key concept advanced, understanding and solving social problems, trying new science learning pattern is a research focus in the last two years. This paper introduces some articles published in international journals this year by Chinese scholars and presents the research perspectives of Chinese scholars.

### (1) *Validity Evidence for a Learning Progression of Scientific Explanation* by Jian-Xin Yao et al. published in *Journal of Research in Science Teaching*

The authors believe that scientific explanation includes four components, they are phenomenon, reasoning, data, theory. Then the authors set a two-facet model of the learning progression of scientific explanation. One facet is the complete degree, whether there are sufficient components in student's explanation. The other facet is component levels, delineates the basic level to in-depth level of each component.

The Scientific Explanation Progression Assessment (SEPA) was developed as an instrument to investigate students' performance in scientific explanations. 4554 students in grades 8-12 in a large Chinese city are the sample. With Rasch analysis and Wright map, learning progression of scientific explanation is described as follows:

| Progression Stage | Performance expectation |
|---|---|
| Stage 1 | To build a scientific explanation, students can . . .<br>•identify the phenomenon that needs explaining. [The phenomenon is clear; it has single variable or has a few variables, but their relationship is simple; the changing pattern conforms to everyday experience.] |
| Stage 2 | To build a scientific explanation, students can . . .<br>•identify the phenomenon that needs explaining. [The phenomenon is clear; it has a single variable or a few variables but their relationship is simple; the changing pattern conforms to everyday experience.]<br>•try to add support for their explanation. |
| Stage 3 | To build a scientific explanation, students can . . .<br>•identify the phenomenon that needs explaining. [The phenomenon is clear; it has a single variable or has a few variables, but their relationship is simple; the changing pattern conforms to everyday experience.]<br>•use the key variable as the clue for choosing scientific concepts, laws, theories, and principles;<br>•search data in a data set that is limited to appropriate data;<br>•make a basic logical connection between idea, data, and phenomenon, through generalization, induction, or simple causal reasoning; However, one of the four components is missing or incorrect in the student's explanations. |
| Stage 4 | To build a scientific explanation, students can . . . |

| | |
|---|---|
| | •identify the phenomenon that needs explaining. [The phenomenon is clear; it has a single variable or a few variables, but their relationship is simple; the changing pattern conforms to everyday experience.]<br>•use the key variable as the clue for choosing scientific concepts, laws, theories, and principles;<br>•search data in a data set which is limited to appropriate data;<br>•make a basic logical connection between idea, data, and phenomenon, through generalization, induction, or simple causal reasoning. |
| Stage 5 | To build a scientific explanation, students can . . .<br>•identify the phenomenon that needs explaining. [The phenomenon needs to be processed from real context. It has several variables and their relationship is complex; the changing pattern may not conform to everyday experience.]<br>•select the scientific concepts, laws, theories, and principles through systematically analyzing the context;<br>•search data in a large data set; |

**(2)** ***Refining a learning progression of energy*** **by Jian-Xin Yao et al. published in** ***International Journal of Science Education***

They set a two-aspect framework to refine learning progression of energy. The first aspect is how students adopt the four key ideas of energy (form, transfer and transform, dissipation, and conservation). The second is the four conceptual development levels (fact, mapping, relation, and systematic). They also raised two factors which influence students' progressions. One is school district (urban vs. suburban), the other is school type (normal vs. model) to potentially. A total of 4550 students from Grades 8 to 12 of schools in a major city in Mainland China took part in the main study. Rasch analysis was used.

With Wright map, the researchers found that the conceptual development levels have robust predication ability for item difficulty. However, adding another variable (the key ideas of energy) could not significantly improve the model. That is the four conceptual levels as distinct levels in terms of the mean item difficulty, and they differ across the levels and increase with higher levels of conceptual development.

As to educational environment, the result is students' performance increasing with years of schooling. A comparison of average item difficulty and average student ability suggests corresponding patterns between conceptual development levels and students' progression. At the beginning of, or more specifically the first year in middle school, model school students' abilities were found to outperform normal school students. Students in suburban model schools performed better than students in urban model schools, while students in suburban normal schools performed worse than students in urban normal schools. But there was no significant difference between urban and suburban schools for the same school type. For students with one more year of education, a significant difference appeared between model schools and normal schools. Students in urban model school significantly outperformed their suburban counterparts.

In high school, urban model school students outperformed other students from the beginning. And urban normal school students showed a better performance than suburban model school students. However, one year later urban normal school students were eventually outperformed by suburban model school students in Grade 12. The researchers believed that the school type significantly affects how and how much students can progress during high school. In terms of conceptual development levels, only students in urban model school were moving towards a systematic understanding.

**(3)** ***Improving Chinese Junior High School Students' Ability to Ask Critical Questions*** **by Xiao Huang et al. published in** ***Journal of Research in Science Teaching***

Question-asking ability is the premise of scientific inquiry and a precondition for effective science teaching. The researchers described the status of junior high school students' question-asking capability measured with a survey. The researchers believed that students' question-asking capability includes question sensitivity, questioning of authority, and quantity and quality of questions.

The students' question sensitivity was reflected in the frequency of their questions, their self-recognition of posing questions, their perceptions of scientific questions and contradictions in the science learning process. questioning authority involves students' willingness to question the teacher's teaching, the textbook, and scientists' views and to formulate reasonable questions. Quantity and quality of questions are important aspects of questioning behavior.

The data from the survey shows that most students ask questions rarely and have no doubt with authority. This result is in line with the Chinese educational culture, in which students answer questions designed by teachers and believe that the views of scientists, textbooks and teachers.

The intervention involved several designed cases that included the explicit teaching of questioning strategies and ample opportunities to ask questions for inquiry and question card use. Cognitive disequilibrium drives questions. Teaching of critical questioning with explicit instruction and inquiry-based activities is proved to help to improve students' question sensitivity and questioning in authority, as well as the critical question asking, specific performance on the quality of fact-based questions decreased while the number of questions asked why and how and the meta-cognitive questions increased considerably.

The development of question-asking ability was further identified in the interviews. The efficacy and implications of the treatment for enhancing the critical question-asking ability of middle-school students in Chinese science classrooms are discussed.

The study suggests that Science teachers should learn to foster the question-rich environment provided by inquiry-based activities. Explicit teaching on methods of asking questions is helpful to change students' question-asking behavior to allow them to judge what types of questions are good questions.

The study further suggests it is appropriate for in-service and pre-service teacher education problems to focus on the skills and abilities used in our intervention activities.

**(4) *Chinese Grade Eight Students' Understanding About the concept of Global Warming* by Jing Lin published in *EURASIA Journal of Mathematics Science and Technology Education***

The study focused on the following three questions: (1) students' understanding about the concept of global warming, including its phenomena, causes, damages, and how to mitigate global warming; (2) students' understanding about daily energy and its usage; (3) students' information sources about global warming. In addition, the interview results of three questions were made t - test and correlation analysis with students' school category, academic achievements and gender.

The research used clinical interviews to survey 37 grade eight students on their understanding about global warming, including the causes of global warming, the harms from and the cures for global warming. Students' information sources were also investigated in every single step.

Qualitative analysis and quantitative analysis were used. The results of t-test showed there was no significant difference between the urban and rural students, also between male and female students. The results of this study are:

1. A majority of the students do not have a scientific concept of global warming. Students acknowledge the existence of global warming, but most of them do not understand its scientific mechanism. Therefore, they think superficially that a large amount of hot carbon dioxide, cause d by driving, coal and electricity combustion, leads to global warming. As a result, students believe that less driving, less coal and electricity combustion are the primary solutions to mitigate global warming. It is clear that there is a lack of systematic thinking for the consequences of global warming on the earth's ecosystem and in the development of society within countries among students.
2. Most students lack a scientific understanding of daily energy and its usage. They understand energy in a narrow and incorrect way. Most students can only talk about coal, electricity and water, which they see every day, and consider their usage as the cause s of global warming. More students in urban schools than rural schools argue that LPG has nothing to do with global warming. Others believe that renewable - energy use may result in global warming as well.
3. Schools, classroom, teachers and parents have not really played a role in assisting students in understanding global - warming. Students receive related information mainly from mass media. Students' information sources

of global warming are significant correlation with students' school category and gender, very significant correlation with students' academic achievements.

By the researchers' opinion, these results implicate that the concept of global warming must be added in science education and the teaching quality of scientific concepts must be promoted in Mainland China.

**(5)** ***The influence of extracurricular activities on middle school students' science learning in China*** **by Dahui Zhang & Xing Tang published in** ***International Journal of Science Education***

Compared with formal learning at school, in the informal learning environment, students have more autonomy in choosing activities and exploring different possibilities based on their own interests while learning knowledge and skills at their own pace. Informal science learning has been a widely accepted and important complimentary part of school education in many developed countries.

This study confirmed five measurable indicators of extracurricular activities: (1) visiting science museums or exhibitions; (2) science investigations out of school; (3) raising small animals or growing plants; (4) attending events that include science knowledge; and (5) completing small creative science projects. The data was self-reported by the students.

Multiple factors might influence the participation in extracurricular science activities, all the factors should be considered as controlling variables. With the aim of avoiding over- estimating their effects on students, the researcher chose four core independent variables included gender (male and female), location of the school (city, county, township, and countryside), student social economic status (high, medium, and low), and mother's education level (never attended, primary school, junior school, high school, college, and master's and above). SEM analysis was used. The findings are:

1. The controlling variable of gender was not found to be significant. Taking this into consideration, the model was specified by removing the path between gender and student achievement. Based on SEM analysis, the frequency of students' attending science-related extracurricular activities based on their own choices was found to have statistically significant indirect effects on student achievement in three subjects (physics, biology, and geography) through learning interests and academic self- concept.
2. School-organized extracurricular activities showed strong indirect and positive influences on student achievement in both physics and biology through learning interests and self-concept.
3. Regarding the accessibility of science-related extracurricular activities, all four demographic variables were found to be significant influential factors. Students from city schools had higher possibilities in engaging in activities than their peers in counties, towns, and particularly in rural areas but the effect is small. The students whose mothers possess higher education levels had more opportunities to access the activities. Compared with the males, girls had more chances to access extracurricular activities

# Sandra K. Abell Institute 2017 in Taiwan

**Nadi SUPRAPTO**
Graduate Institute of Science Education, National Dong Hwa University
Universitas Negeri Surabaya

Originally the summer institute was named in memory of Sandra K. Abell, a Professor of science education at the University of Missouri, who had significant contributions in conceptualizing, planning, and hosting the first institute in 2009. Sandra passed away from ovarian cancer in 2010. A year later, the Sandra K. Abell Institute (SKAIDS) 2011 was held in Colorado Springs and supported by faculty of Pennsylvania State University. Since then, the institute has continued to facilitate meetings between science education scholars and graduate students every two years. In 2017, the institute was held at National Taiwan Normal University (NTNU) on June 24-28, which is the fifth institute since 2009 and the first to be held out of U.S.A.

Thirty-five doctoral students from the universities in 11 different regions such as U.S.A., Taiwan, Mainland China, Korea, Turkey, UK, Ireland, Israel, Finland and Australia actively participated in the institute. Most of them came from U.S.A. (17 students), and then followed by Taiwan (6 students). Meanwhile, there were 12 mentors coming from famous universities in the world, such as Prof. Mei-Hung Chiu and Prof. Shiang-Yao Liu (NTNU), Prof. Sibel Erduran (University of Oxford), Prof. Mary Atwater (University of Georgia), Prof. Rowhea Elmesky (Washington University in St. Louis), Prof. Joseph Krajcik and Prof. Christina Schwarz (Michigan State University), Prof. Marrisa Rollnick (University of Witwatersrand), Prof. Jing-Wen Lin (National Dong Hwa University), Professor Lei-Wang (Beijing Normal University), Prof. Doris Jorde (University of Oslo), and Prof. Muhsin Menekse (Purdue University).

The participants were grouped into six research areas and supervised by two mentors in each group: 1. Curriculum, learning and assessment; 2. Equity and inclusion; 3. History and philosophy of science; 4. Models and modeling; 5. Teacher perception, teaching and teacher education; and 6. Technology. Within the five days, Abell Institute mentors and students stressed on the importance of collaboration in helping young scholars engage in the larger scientific community and strengthen their research. The students worked in small groups on issues related to their research, received tips on how to deal with their research skills, and established networks that should help them as they embark on their research careers.

**A group of SKAIDS 2017: two mentors and seven participants**

In addition, the participants also enjoyed four refreshing talks from some mentors about the new trends in science education, for example, argumentation for research, professional development, NTNU GISE doctoral program, and international collaborative research methods. They also took apart in a series of workshops with themes about theoretical and conceptual frameworks, research designs and data analysis, and publications. At the end of the institute, the groups presented their proposals and posters for the upcoming NARST conference as the outcomes of the institute. The host of the institute also organized cultural tours in Taipei and Yilan. It was noted that the National Center for Traditional Art in Yilan and the National Palace Museum in Taipei became a witness of the cohesion, joy, and the success of the program.

Finally, acknowledgments should be addressed to NARST, GISE NTNU as the sponsors and the host, Prof. Mei-Hung Chiu and Prof. Sibel Erduran as Director and Co-director of the institute, Dr. Hongming Liaw and a team of the postdoctoral fellows of NTNU to support the program.


**A team from National Dong Hwa University Taiwan, comprising of three doctoral students and Prof. Jing-Wen Lin, one of the mentors, after the poster presentation(left) and closing ceremony (right)**

# 2017 The 6th AZEC & 33rd ASET Joint International Conference in Taiwan:

## Dance with the Popular Science Education

**Sheng-Yi WU**
Department of Science Communication, National Pingtung University

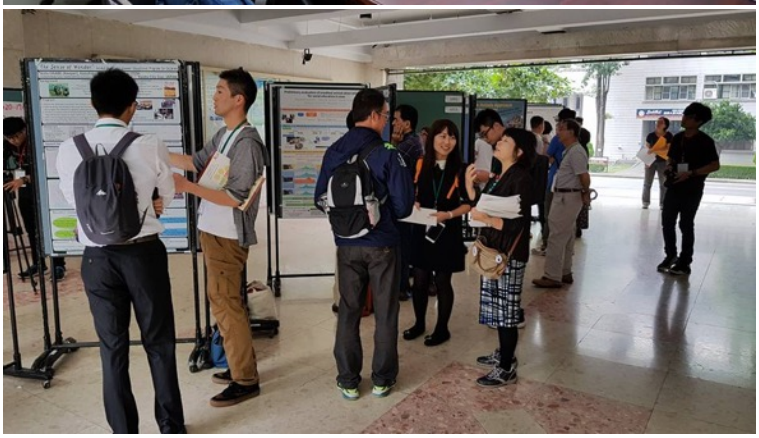
2017 The 6th AZEC & 33rd ASET Joint International Conference was taken place in National Pingtung University from November 9 (Thursday) to November 12 (Sunday), 2017. The conference theme is "Dance with the Popular Science Education". The theme reflects the international science communities have paid attention to popular science communication recently. The science education is the fundamental of the popular science communication, and the scientific knowledge is delivered by understandable and motivating approaches with various media. Meanwhile, the conference also coordinates with Asian zoo educators, to allow experts and scholars from the fields of science education, popular science communication as well as zoo educators to gather together to share and discuss by means of keynote speeches, seminars, paper presentation and workshops.


This conference invented five keynote speakers, including Sean Perera (Australian National Centre for the Public Awareness of Science, USA), Julia Corbett (Affiliate Faculty, Global Change & Sustainability Center, Australia), Hiroyuki Takahashi (Japanese Zoo and Aquarium Educators, Japan), Janet Cheung (Ocean Park, Hong Kong) and Rachel Lowry (Director of Wildlife Conservation and Science at Zoos Victoria, Australia). The five keynote speakers shared the theory and practice of popular science communication from diverse aspects as science communication, popular science activity and zoological popular science education.



The conference programed several oral presentations and posters presentations. A lot of presenters appreciated much the feedback and comments to their studies, and the conference participants involved deeply in the academic discussion as well. In total, around 270 participants from five countries attended this conference.






The 34rd Annual International Conference of ASET will be hosted by the National Dong Hwa University. The ASET is very pleased to invite EASE members to participate in the 2018 ASET international conference.

# High school students' interactive art exhibition:
## Outputs of STEAM club activity

**Kongju MUN**
Research Institute of Curriculum and Instruction, Ewha Womans University

An interactive art exhibition, which combines science and art created through one year of STEAM club activities, was held at Seoul Science Center from November 5th to 12th. A total of 31 students including 22 students from A-STEAM club in Kaywon High School of Arts and others from Seoul Visual Art gifted Association, were introduced in this exhibition. Hee-Sung Song (art teacher), a chief teacher of A-STEAM club at Kaywon High School of Arts, has tried various lessons for arts high school students to try to integrate science, technology and art through club activities for the last 5 years. In this class, students emphasized the transformation of ideas to explore the relationship between science, technology and art, and to create creative ideas through new ways of thinking. In addition, the technical tutor (Chang-Seop Song) instructed students on the skills necessary to create an interactive work using Arduino. Students learned basic usage of Arduino, program coding, and use of various sensors and motors. Students designed and produced a new type of science-art integrated work that could interact with the audience on their own. This process began in last March and lasted until October.


**Exhibition setting and poster on November 4, 2017**

STEAM education has been supported by the government for the last 7 years in Korea. Therefore, various programs were developed. Many Korean teachers interest in STEAM education and they have been try STEAM activity in their classroom. There has been controversy over the effectiveness of STEAM education in the process. This exhibition has shown practical examples of how students can achieve an integrate curriculum and create an integrated product based on STEAM curriculum. Many science teachers and art teachers visited this exhibition and said that they could understand the effect of STEAM education through the students' products.

**Visitors participating in interactive artworks (left and middle), and technical tutors and art teacher**

I have been observing all the process of STEAM lessons for a long period of club activities from the viewpoint of the researchers from March to the present. Based on this qualitative research approach, I want to understand what is the integrated curriculum and STEAM education. So far, as I watched students' activities, I was able to see students stepping out of the wells they were holding through STEAM lessons. Students were able to create new ideas and creative thinking through integrated disciplines.

# APSE (Asia-Pacific Science Education):
## Call for papers

**Yan WANG**
University of Helsinki, Finland

**APSE welcomes science education research in Asia**

APSE is unique in that our journal focuses on the publication of scholarly articles examining science education issues in the Asia-Pacific region as well as research involving Asian-Pacific students and teacher populations in other areas of the world. We hope to be the central channel for disseminating research in Asia to both the regional and international research community.

**Double-blind peer review and broad methodology and content**

Papers for publication in APSE are selected through a double-blind peer review system to ensure quality, originality, validity, and significance. APSE's scope is broad in both methodology and content. We accept research conducted at all levels and scholarly manuscript employing various methodological approaches.

**Support the non-English speaking authors**

The Journal is published in English. Our Editorial Board has a strong commitment to support non-English speaking authors to publish their research in APSE! We focus attention first on evaluating the quality of the research being shared and then we work with scholars to improve the quality of the language to be published.

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**APSE Support for article processing fee for EASE members**

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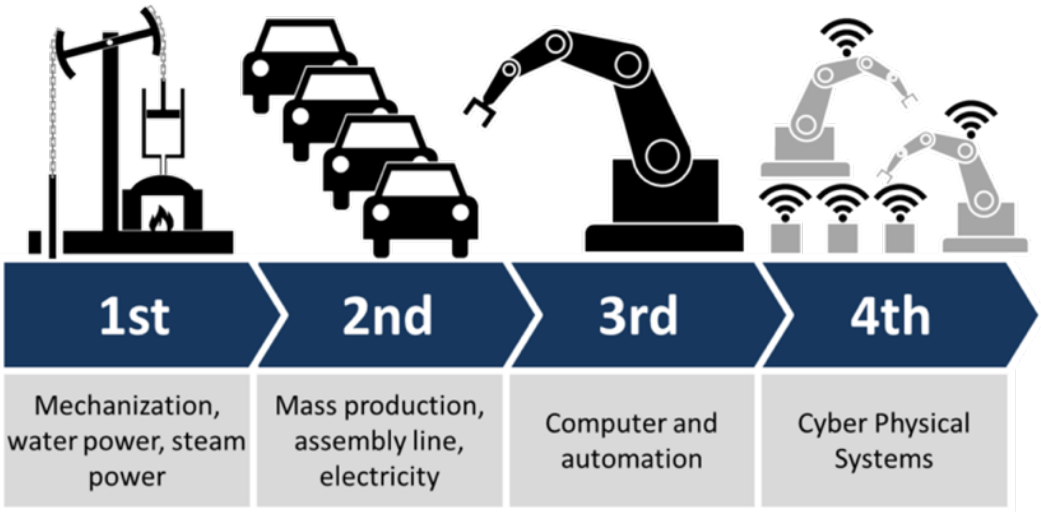
# The changes of future society and educational environment

## according to the fourth industrial revolution and the tasks of school science education

**Hunkoog JHO**
Dankook University

Nowadays, the public as well as science educators pays much attention to the fourth industrial revolution and wonders what will happen to the societies in the future. Briefly, the industrial revolutions are categorized as follows: the first one as the advent of steam engine and transition to light industries, the second one to foster mass production through the electricity and assembly line, the third one of automated office and factory by ICT, and the fourth one combining ICBM (Internet of things, cloud service, big data, and mobile) and evoking cyber physical systems.




**Brief explanation of history of industrial revolution (Forbes.com)**

The fourth industrial revolution was introduced in the World Economic Forum in 2016. Schwab, Kurzweil, Frey, Osborne and others highlighted the massive transformation of the world in the forthcoming era. It can be directed to the four points. The most remarkable one is the fluctuation of job market. Nowadays, the traditionally strong occupations are losing people's interest: economics, management, and natural sciences whereas the interdisciplinary jobs are rising such as data science, HCI (Human Computer Interaction), and architecture for virtual reality. Besides, over 80 percent of what children learn in schools will be out of use when they are 40's, and Frey and Osborne predicts that artificial intelligence and robotics could occupy the physical labor jobs as well as professional jobs like accounting, legal profession and medical diagnosis.

Next focus is on the movement from possession-based economy to sharing economy. In the past, people struggled to occupy the limited goods. However, people are accustomed to sharing the resources. For example, Uber, Airbnb, Amazon(kindle), and Youtube are great contenders to help people to share what they have, based on the open platform.

The third one is the advent of post-urbanized and distributed system. The development in communication and transportation technologies bring about spatial freedom. For example, a few of companies give their employees to chance that they can work out of office. Actually, the metropolitan areas were formed for people to get a job and to use the plenty resources, but in the future, we can do whatever we want with a pleasant life in a country side.

The last one is a crisis in the humanity. In the twentieth century, many scholars worried about the alienation of human being (e.g., human capital by K. Marx). Worse than before, in the future we may have to worry about the extinction of humanity because artificial intelligence tries to imitate human thoughts and emotions and the development are being accelerated. After all, we may not distinguish artificial existence from human beings.

In light with such changes, educational system will be also transformed into the different shapes. First, the students should the competences necessary for the future and the school curriculum will be changed in terms of width and depth. Teachers should be able to rearrange the curriculum according to the situation. Second, sharing economy may bring about the open platform similar to MOOC (Massive Open Online Course) or TED. Teachers should be able to deal with up-to-date technologies and produce effective educational materials for the new platform. Third, the manifestation of artificial intelligence in education will enable the individual and paced learning, and thanks to the change, the concept of distributed cognition will be more focused in education research. In this light, artificial intelligence may play an assistant role in teaching students basic concepts and skills, and teachers will become a coordinator for the whole system. Fourth, the collaborative learning and character education should be more stressed to resist the dehumanization. As well, there needs to develop an assessment framework to evaluate the practice of a community or a group, not an individual.

(This article is edited from the articles published in two journals and you can directly access them at http://doi.org/10.15267/keses.2017.36.3.286 and http://uci.or.kr/G704-SER000001745.2017.11.2.022 .)

# Upcoming conferences

## 2018 International Conference of KASE (Korean Association for Science Education)

January 25-27 @ Dankook University, Korea

KASE is an organization representing Korea's science education and holds an international conference every winter. Dankook University at the Jukjeon campus is very proud to host this coming KASE international conference 2018. The theme of the KASE international conference 2018 is "Beyond the classroom: Expanding the boundaries of science education." At this conference, we as an international science education community hope to find innovative ways to bring our science education to growth by linking science teaching with out-of-school education. You will enjoy all strands covering this theme during the KASE conference.
Dankook University was established in 1947 based on founders' lofty ideal that the fundamentals of education lie in serving one's country and maximizing the potential of individuals. After 60 years of proud history in Seoul, DKU relocated its main campus to Jukjeon in 2007, in an effort to prepare itself for a giant leap forward in a global age. Dankook University is surrounded by Korean cultural heritage sites such as Folk Village, Wawoojongsa Temple, and Hwaseong Fortress. There are also various attractions such as Theme parks and Nam June Paik Art Center. We believe that the conference will be an enjoyable experience for all participants.

There are some important dates to remember. You can find all information of abstract submission, conference site, and registration. You can get information about invited speakers; Ian Abrahams (UK), John Lawrence Bencze (Canada), Hye Eun Chu (Korea), Ying-Shao Hsu (Taiwan), Ming-Jun Issac Su (Taiwan), Masashiro Kamata (Japan), Chan-Jong Kim (Korea), Sungwon Kim (Korea), Kang Hwan Lee (Korea), Yew Jin Lee (Singapore), Yumi Lee (Uzbekistan), Jong-Deock Lim (Korea), William F. McComas (USA), Margaret R. Blanchard (USA), Jesper Sjöström(Sweden), and Chi Ho Yeung (Hong Kong). I hope you can come to meet them and share the ideas of your interest with them in Korea.

http://www.koreascience.org/english
**Inquiries to:** karse@knue.ac.kr

## International Science Education conference 2018
### Re-searching Science Education: Same Issues from Different Lenses

June 19-21, 2018 @ National Institute of Education NIE, Singapore

The International Science Education Conference 2018 is jointly organized by the Ministry of Education Singapore and the National Institute of Education, Nanyang Technological University, Singapore. The theme “Re-searching science education: Same issues from different lenses” aims to provide a platform for intellectual dialogue on issues in science education using alternative lenses. Many problems in science education are not new, but can be addressed with new lenses to identify different or unique strategies and solutions. The word “re-search” is intentionally hyphenated to underscore the importance of constantly re-looking and re-examining previous issues so as to gain new insights into familiar problems that confront diverse stakeholders in science education. Through such a process, the field of science education will progress and be enriched.

Conference Website: http://www.isec2018singapore.org/

**Important Dates**
Deadline for submission of abstracts – 27 September 2017

Email notification of acceptance or rejection – 15 December 2017
End of early-bird rate for conference – 15 January 2018
Deadline for submission of full paper – 31 January 2018

**Keynote Speakers (in alphabetical order)**
Dr. Vanessa Kind, School of Education, Durham University, U.K.
Dr. Sonia Martin, Science Education Faculty, Seoul National University, Seoul, Korea
Dr. Subramaniam Ramanathan, Natural Sciences & Science Education Academic Group. NIE, Nanyang Technological University, Singapore
Dr. Victor Sampson, College of Education, The University of Texas at Austin, U.S.A.

**Inquiries to:** isec2018@nie.edu.sg

# The 42nd JSSE Annual Conference

August 17-19, 2018 @ Shinshu University, Nagano, Japan

The 42nd Annual Conference of Japan Society for Science Education (JSSE) will be held at Shinshu University (Nagano Education Campus), Nagano, Japan in August 17-19, 2018. The conferences have featured symposia, contributed papers and interactive sessions.
For more information, please visit the website http://www.jsse.jp/jsseam/modules/note4/

The Japan Society for Science Education (JSSE) was founded in 1977 to contribute to the progress and diffusion of "Education in/about science" and "Education by scientific and technological methods." For this reason, the areas of research covered by the JSSE are inherently broad (please see the Profile page). With greater attention being focused on a science-technology-information based society, the promotion of the "nation-building on the basis of innovative science and technology" policy by the Japanese government, the lack of interest in science among children and the general public, and the current growing attention to science communication, the JSSE has further expanded its areas of research in recent years.

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# The fourth Asian HPST&ST Conference

November 21-23, 2018 @ National Dong Hwa University, Hualien, Taiwan

The fourth conference will be held at the National Dong Hwa University, Hualien, Taiwan, 21-23 November 2018. The conference will precede, and overlap by one day, the East-Asian Association for Science Education conference also occurring at Dong Hwa University. The conferences have featured plenary lectures, contributed papers and workshops. Plenary lectures have been given by:

Yung Sik Kim, Seoul National University, Korea
Norman Lederman, Illinois Institute of Technology, USA
Hasok Chang, Cambridge University, UK
Gregory Radick, University of Leeds, UK
Igal Galili, The Hebrew University, Israel
Takehiko Hashimoto, University of Tokyo, Japan
Alice Siu Wong, University of Hong Kong, Hong Kong
John Dupré, University of Exeter, UK
Juang-Tai Hsu, National Tsing Hua University, Taiwan
Mansoor Niaz, University de Oriente, Venezuela
Otávio Bueno, University of Miami, USA
Dung Sheng Chen, National Taiwan University, Taiwan

Szu-Ting Chen, National Tsing Hua University, Taiwan
Martin Kusch, University of Vienna, Austria
Alan Love, University of Minnesota, USA
Hans Peter Peter, Free University of Berlin, Germany
C. Kenneth Waters, University of Minnesota, USA
Darrel Rowbottom, Lingnan University, Hong Kong
Chanju Kim, Ewha Woman's University, Korea.
Sang-Wook Yi, Hanyang University, Korea
Michael R. Matthews, UNSW, Australia

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