E·A·S·E East-Asian Association for Science Education

THE NEWSLETTER OF THE EAST-ASIAN ASSOCIATION FOR SCIENCE EDUCATION
東亞科學教育學會通訊

VOL.4, NO.1
NO. 0013
MARCH. 15, 2011

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http://theease.org/

Invitation letter of EASE 2011

Dear professors, teachers, researchers, and students,

We cordially invite you to the upcoming event, the EASE 2011 conference, held in Gwangju, Korea. The East-Asian Association for Science Education (EASE) is hosting "The 2nd Biennial International Conference of EASE 2011" at Chosun University. The conference takes place on October 25 - 29, 2011, under the theme of "**Lighting the World with Science**."

EASE 2011 conference will be a good change when science educators, researchers, science teachers, and organizations in the East-Asia region develop a strong network and establish a foundation for promoting science education for the 21st global society. On the basis of the EASE international conference, it is also encouraged for EASE members to have continuous sharing of ideas and practices as well as to build international friendship.

On behalf of the Organizing Committee of the EASE 2011 conference, we encourage you and science educators in your regions to join EASE 2011. Consistently with our conference rationale, we invite professors, teachers, and researchers to present and share their research or school practices. The topics of the conference include, but are not limited to, educational studies in science, mathematics, technology, and environment. The deadline for the abstract (150-500 words, English only) is May 31, 2011. The acceptance will be announced to individual author(s) by June 30, 2011. The deadline for full paper (optional) is July 31, 2011.

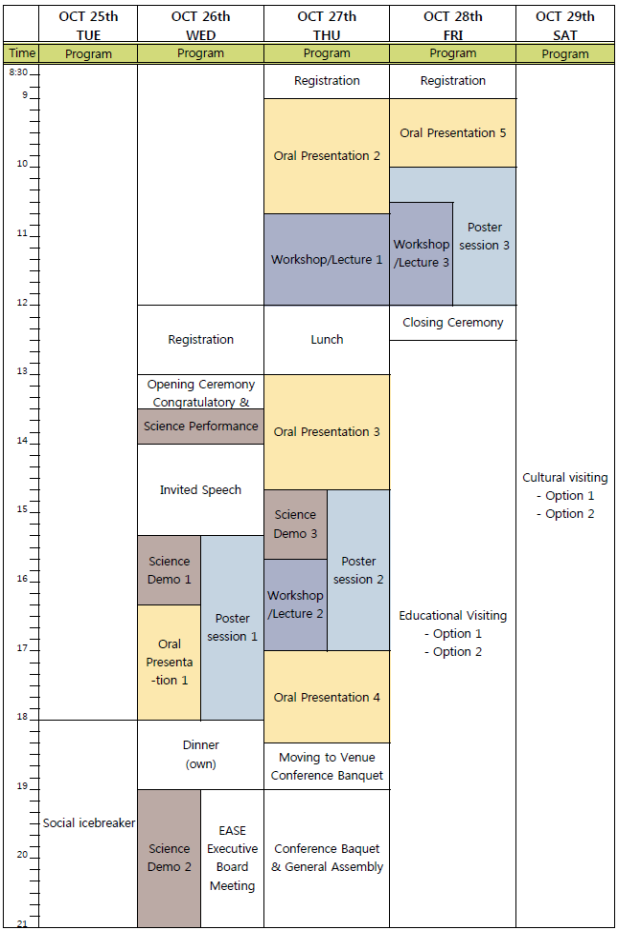
With this invitation letter, you can also find the flyer and poster of EASE 2011 in website of EASE. Please advertise this event to your affiliation, colleagues and friends. Furthermore, it would be great if you can contain a hyperlink to the EASE 2011 website (http://new.theease.org/conference.php) in your persona or institution's website.

If you have any questions, please do not hesitate to contact us via email at easeheadquarter@gmail.com or parkys@chosun.ac.kr. We are looking forward to seeing you at the conference in the beautiful season and expecting your support for having the successful conference. See you in the Golden October, 2011, in Korea.



Yours sincerely
Byungsoon Choi
Chair, The Organizing Committee of EASE 2011
Youngmin Kim
Chair, The Conference Coordinator of EASE 2011

BRIFE SCHECHULE



IMPORTANT DUE DATES OF EASE 2011 international conference

- Abstract submission: April 1st – May 31st. 2011
- Abstract review: June 1st – June 15th, 2011
- EASE 2011 registration:

  June 1st – August 9th, 2011 (Early bird)

  Deadline for on-line registration: September 30th, 2011

  Registration rate

□ **Early bird registration (August 9, 2011)**	US $ 150
□ **Early bird registration (August 9, 2011) for students/teachers**	US $ 70
□ **Registration(agter August 9, 2011)**	US $ 200
□ **Registration for students/teachers(agter August 9, 2011)**	US $ 90
□ **On-site registration**	US $ 220
□ **On-site registration for students/teachers**	US $ 110

- Full paper submission(option): July 31st, 2011
- Notification of acceptance: June 16th – June 30th, 2011
- Hotel reservation: Available form April 1st, 2011

-You can find information about venue of EASE 2011 international conference, Chosun University, in Korea, transportation of how to visit Korea, attraction of what to see, what to eat, and what to enjoy during your stay in Gwangju, Korea.

- Hotel reservation starts from now on. You can find all information from the website of EASE 2011 http://new.theease.org/conference.php,visit accommodation.

Contact on abstract/paper submission: Prof Hye-Gyoung Yoon (yoonhk@cnue.ac.kr)

Contact on registration: Prof Hyunju Lee (hlee25@ewha.ac.kr)

Contact on general information about EASE

: Prof Young-Shin Park (easeheadquarter@gmail.com)

Annual Report 2010

1. Membership (from 2009 OCT to 2010 DEC)

- 85 membership added in 2010
- Member of EASE who paid at least once: 231 in total at present

2. EASE summer workshop (2010 July 18th-2010 July 23rd)

- The 1st EASE was held in National Taiwan Normal University, Taiwan.
- The purpose of the summer workshop was to provide education for advanced graduate students working in science education and related fields and invites members to participate in a five-day workshop
- You can find more information here; http://new.theease.org/workshop.php

3. .EASE E-newsletter in 2010 and 2011

- Year of 2010: 4 issues of EASE newsletters were published in 2010.
- Yeas of 2011: Each issue of 2011 will be published in each region as special version (March issue from Taiwan, June from Hong Kong, September from China mainland, December from Korea)

4. The First Collaborative Research in EASE

- New collaborative project among East-Asia regions commenced with the title of SCI (Science Culture Indicators) for 7 months from May to November 2010.
- The aim of this project was to develop SCI, which can be used to monitor the status quo of science culture of regions in East-Asia area at society levels, indicating how much regions in East Asia are scientifically literate in terms of current status in science culture infrastructure, its perception, and its benefit, which in turn can be used as practical data source for establishing policy of systematic science culture in East-Asia area.
- You can get the final report and data from EASE website through membership registration first (benefit for EASE members only)

5. Others

- New website of EASE (http://theease.org) has been constructed
- For more information, you can find the full annual report of 2010 in website of EASE

CONFERENCES AROUND THE WORLD

NARST 2011 Apr. 2-6, 2011 @Orlando, FA, USA http://www.narst.org/

Canada International Conference on Education (CICE-2011) Apr. 4-7, 2011, Toronto, Canada. http://www.ciceducation.org/

Scientix conference May 6 - 8, 2011@Brussels, Belgium http://scientix.eventbrite.com/

Visions for Teaching and Teacher Education May 18-20, 2011, @University of Oslo, http://uv-net.uio.no/wpmu/visions-for-teaching/

Redesigning Pedagogy International Conference 2011, May 30 - Jun. 1, 2011 @NIE, Singapore, http://conference.nie.edu.sg/2011/

IOSTE Mini Symposium Jun. 20-21, 2011 @Reading, UK http://ioste-nwe.wikispaces.com/

42nd Annual ASERA Conference (Australasian Science Education Research Association) Jun. 29 - Jul. 2, 2011 @University of South Australia, Adelaide SA, AU Submissions: Apr. 29 (Extended) http://www.asera.org.au/

11th International IHPST and 6th Greek History, Philosophy and Science Teaching Joint Conference Jul. 1-5, 2011 @Thessaloniki, Greece http://ihpst2011.eled.auth.gr/

The 18th International Conference on Learning: Learning Conference 2011 Jul. 5-8,2011 @ University of Mauritius, Reduit, Moka, Mauritius http://thelearner.com/conference-2011/

1st triennial Western Conference on Science Education Jul.6-8, 2011 @Ontario, Canada Proposal submission: Mar. 15 http://www.thewesternconference.ca/

22nd Annual Meeting of JSEE (Japanese Society of Environmental Education) Jul. 16-18, 2011 @Aomori University, Japan http://wwwsoc.nii.ac.jp/jsoee/

6th World Environmental Education Congress Jul, 19-23, 2011 @Brisbane, Queensland, AU http://www.weec2011.org/

2011 ASP Education and Public Outreach Conference (Astronomical Society of the Pacific) Jul. 30 - Aug. 3, 2011 @Baltimore Maryland, USA.

ASP 2011 Conference on Science Education & Public Outreach (American Astronomical Society) Jul.31-Aug.3, 2011 @ Baltimore Inner Harbor, ML, USA Abstract: Apr. 22 http://aas.org/

61st SJST Annual Conference Aug, 20-21, 2011 @ Shimane University, Japan http://wwwsoc.nii.ac.jp/sjst/eng/index_e.html

35th JSSE Annual Conference Aug. 23-25, 2011 @Tokyo Institute of Technology, Tokyo. http://cert.shinshu-u.ac.jp/et/jsse/index.html

EARLI Conference 2011 (The 14th Biennial Conference of the European Association for Research in Learning and Instruction) Aug. 30 - Sep. 3, 2011@Exeter, UK. http://www.earli2011.org/

ESERA 2011 Conference Sep 5-9, Lyon, France. Abstract submission: Jan. 10, 2011 http://www.esera2011.fr/

World Conference on New Trends in Science Education (WCNTSE) Sep. 19-23, 2011 @ Kusadasi, Turkey http://www.wcntse.org/

Science Education at the Crossroads 2011 Sep. 25-27, 2011 @San Antonio, Texas, USA Proposal: May 2 http://www.sciedxroads.org/

Ireland International Conference on Education (IICE-2011) Oct. 3-5, 2011, Dublin, Ireland http://www.iicedu.org/

EASE 2011 Chosun University, Gwangju, Korea. Oct. 25-29, 2011 (See page 1 & 3) theease.org/conference Abstract submission: May 31, 2011 Full paper(Option): Jul. 31, 2011

London International Conference on Education (LICE-2011) Nov. 7-10, 2011, London, UK http://www.liceducation.org/

3rd International Conference on Science and Mathematics Education (CoSMEd) 2011 Nov. 8-10, 2011 @Penang, Malaysia http://www.recsam.edu.my/cosmed/index.html

SSMA 2011 Convention (School Science and Mathematics Association) Nov. 10-12, 2011, Colorado Springs, CO, USA http://www.ssma.org/

2011 Taiwan Educational Research Association (TERA) International Conference on Education (TICE 2011) Dec. 15-18, 2011 @Kaohsiung, Taiwan Abstracts/proposals: Aug. 15 August 2011 http://www.education.nsysu.edu.tw/TICE2011/

ASTE 2012 International Conference (Association for Science Teacher Education) Jan. 4-7, 2012, Hilton Clearwater Beach Resort, FL, USA, Workshop proposal: Apr. 30, 2011. http://theaste.org/meetings/2012conference/index.htm

NARST 2012 Annual International Conference Mar. 25-28, 2012 @Indianapolis, IN, USA http://www.narst.org/

NSTA 2012 conference Mar.29-Apr.1 2012 @ Indianapolis, IN, USA Submission by Apr. 15, 2011. http://www.nsta.org/

Contributers to this issue

Chih-Hsiung Ku, Tzu-Ling Wang, Wen-Gin Yang, Chia-Ju Liu, Huei Lee, Chun-Ju (Jerome) Huang, Nelson C. C. Chen, Ting-Chiao Wang, Pei-Ying Wu, Montzy Cheng* and Sung-Tao Lee* (all from Taiwan), Cheng May Hung May* (Hong Kong), Eun Ah Lee* (Korea), Hisashi Otsuji* (Japan), Young-Shin Park* (Korea), Jinwoong Song (Korea), Alice Wong (Hong Kong) , *editors

The 26th Annual Conference of the Association of Science Education in Hualien, Taiwan

Chih-Hsiung Ku (National Dung-Hwa University)

In recent years, science education research in Taiwan has reached a considerable progress, both in quality and quantity. Not only academic studies but public promotions of science education are important missions for science educators. The National Science Council and Ministry of Education of Republic of China (ROC) have played active roles in supporting the development of science education, especially in holding science education conferences. The 26th Annual Conference of the Association of Science Education just took place (December 10-12, 2010) in National Dong Hwa University in Hualien, Taiwan. More than five hundred participants attended this conference.

The theme of this conference is "Opportunity and Equity: New Trends in Science Education". It means multicultural science education was concerned in this conference. Besides, four established scholars got the Science Education Lifetime Achievement Award. They are Professor Ming-Tung Wei, Professor Chin-Chi Chao , Professor Yeong-Jing Cheng and Professor Chorng-Jee Guo. Their long-term contribution and dedication have established a new paradigm for science education and have gained science educators' respect.

Two keynote speakers were invited in this conference. One is professor Hsiao-Ching She, the winner of 2010 outstanding research award of National Science Council (ROC). Another keynote speaker is Professor Pauline Chinn from University of Hawaii. Their topics of speech were about conception change and place-based science learning.

All submitted papers were peer reviewed. 124 papers were accepted as oral presentations (passing rate: 59.9%), and 35 papers were accepted as interactive posters. In addition, six interesting workshops were held during the conference. Most of them were outdoor activities, so that the beautiful Hualien became the best science learning classrooms. Moreover, the local education partners brought us different types of cultural experiences. The orchestra playing of Hua Gong Junior High school and the indigenous dance of National Hualien Vocational High School of Industry demonstrated the multi-cultural characteristics of Hualien. In this conference, we can see not only the rapid growth in science education study but also the linkage of science and humanity.



2011 Conference on Technology Based Learning Environments and Professional Development

Tzu-Ling Wang (National Hsinchu University of Education)

The Graduate Institute of Mathematics and Science Education at the National Hsinchu University of Education hosted a two-day international conference, 2011 Conference on Technology Based Learning Environments and Professional Development. The purpose of the conference was two-fold: (1) to increase the academic exchanges between Taiwan and America, and (2) to explore new approaches to professional development, serious educational games and on-line learning opportunities for science and mathematics classrooms. The participants of the conference included K-9 teachers, graduate students, and university professors in Taiwan.

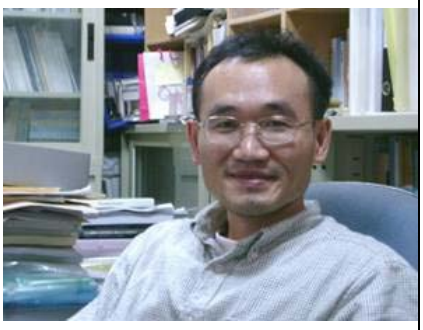
Keynote speaker: Dr. James Shymansky

The keynote speakers for the conference were Dr. James Shymansky and Dr. Leonard Annetta. Dr. Shymansky is an E. Desmond Lee Professor of Science Education at University of Missouri-St. Louis and Dr. Leonard Annetta is an Associate Professor of Science Education at George Mason University. Dr. Shymansky is a leader in the field of teacher professional development in science education. Dr. Shymansky's is an international leader in science education with more than 80 research publications, more than 200 conference presentations and US$10,000,000 in grants. He has served as president of the National Association for Research in Science Teaching and has been an editor of two top tier journals in science education.

Keynote speaker: Dr. Leonard Annetta

Dr. Annetta's research has focused on e-learning and the effect of instructional technology on the science learning of teachers and students in rural and under-served populations. Dr. Annetta has numerous publications, conference presentations, and funding on the effectiveness of technology and science teacher education. He has designed and created Serious Educational Game for students from grades 5 through graduate school while securing over $5 million funding from the National Science Foundation for his work. He was named as a 2006 and 2008 National Technology Leadership Initiative Fellow in science education and technology for his work in 3D virtual role-play games and for synchronous on-line instruction. Other invited conference speakers included Dr. Kuo-Hua Wang, Professor of Science Education at the Graduate Institute of Science Education at National Changhua University of Education, Dr. Yu-Ling Lu, Professor of Science Education at National Taipei University of Education, Dr. Ming-Chou Liu, Associate Professor of Curriculum Design and Human Potentials Development at National Dong Hwa University, and Dr. Hsin-Yi Chang, Assistant Professor of Science Education at National Kaohsiung Normal University.

Science Learning with Mandarin Chinese



Wen-Gin Yang (National Taiwan Normal University)

The importance of language in science education was neglected and even devalued in Taiwan for a long time. Science, science learning, and science teaching, even all science practices are viewed as nothing or little to do with language. The payoff for such a viewpoint might have led to the inconsistent performance level of Taiwan students in TIMSS, PISA 2006 and PISA 2009.

Since 1990s, English speaking societies, including linguists, language educators, reading psychologists, introduced new modes of integrating language into science education practices. For instances, Norris and Phillips distinguished the meaning of scientific literacy into fundamental sense and derived sense; Schleppegrell and Fang studied the language of schooling, which could be inspirational of science teachers' professional development; Len Unsworth employed the Literacy Development Cycle to promote the development of multiliteracies in the context of school classroom. There are also more linguistic oriented and more 'orthodox' science education strands of research. The former includes D. Bank's study of the development of science English since the 15th century, S. Darian's analysis of scientific language, Carol Reeve's 'language of science', and the studies of the language of science and multimodality of texts headed by M. A. K.Halliday, J. R. Martin and G. Kress, and T. van Leeuwen. The latter ranged from learning science by writing to engaging learners in scientific thinking by applying specific language activity, such as Toulmin's Argument Patterns (TAPs).

Some of the above mentioned research topics are almost synchronized between Taiwan and the leading science education communities. However, some are not. This may be due to the fact that science and the language of science are neither a part of Mandarin Chinese. It's nowadays meaningless to study Mandarin Chinese for scientists to talk, write, and think of science; scientists are encouraged to report their findings in English rather than their mother language, although they learned science in Mandarin. The specific status between Mandarin Chinese and science (education) indeed urged that science education of Taiwan has to take this reviving old language into consideration in order to effectively improve the quality of science teaching and learning, especially for k-12 grade learners.

The strengths and weaknesses of this language in science learning should be looked at and monitored across disciplinary boundaries continually and longitudinally. Some topics in this line have acquired their beginning in the past decade.

(1) Establishing Mandarin Chinese science text database. It's a linguistics corpus as well as a database. As a linguistic corpus, it represents the grammar features deployed and the content of subject matters conveyed by science text for students from elementary to senior high school. The former includes words and word frequencies, sentence patterns and lexico-grammatical resources, and so on. The latter may range from the science concept, nature of science to the process skills of science. Corpus linguistics study of science texts would serve as a baseline for interpreting the current status of science education.

(2) Analyzing and reconstructing science texts in terms of the ideal of 'the language of science'. The language of science or science English developed by the founders of experimental science is characterized by its specific ways of constructing meaning from experience. Science learning would be facilitated if the science texts are organized in such language; more importantly, learning such language itself is necessary for the next generation scientists and is valuable for all citizens as well.

(3) Examining the ways that science texts and science teachers used to describe and explain the world. The former may include the composition and classification of the natural world; the latter the temporal and causal relations among natural phenomenon and science events.

(4) Cross-language comparison of the features of science texts. Such studies could be very useful in improving the understanding of the uses of Mandarin Chinese in science discourses.

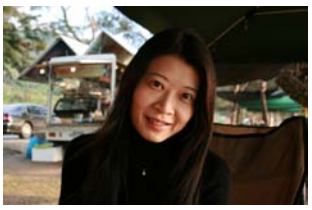
(5) Reflecting on the inherent characteristics of Mandarin Chinese that could be potential obstacles for reading comprehension. Features such as 'segmentation characters into word', 'zero anaphora', 'structural nature of phrases' are candidates that could prevent readers from getting the gist of what they read. More importantly, identifying the inappropriate uses of language in science texts is extremely essential. Many misunderstanding of science concepts and erroneous ways of thinking are caused by abuses of the language.

(6) Analyzing and comparing versions of Mandarin science textbooks are possible as soon as the features of the language of science and the characteristics of Mandarin Chinese are known. This issue is compelling if there are more than one choices of science textbooks.

Many research topics of language and science education are on the way in this Island; they are as important as those mentioned above. Such as automatic evaluating system of student essay writing, functional language analysis of TIMSS free responses, promoting argumentation ability via writing heuristics, and so on. Many science educators now acknowledge that there is no science without language, and every science class itself is a language class, and even there would no fact without language. The quality of science teaching and learning could be benefited if science content learning and science language acquisition occurs simultaneously.

The Neurocognition Laboratory in NKNU

Chia-Ju Liu (National Kaohsiung Normal University)



For exploring how students learn science from neuropsychological perspective, the Neurocognition Laboratory in National Kaohsiung Normal University, Taiwan, was established by Professor Ching-Yang Chou, Houn-Lin Chiu, and Chia-Ju Liu in 2004. Professor Liu is currently the director of the laboratory and also serves as chairperson of Graduate Institute of Science Education. She was also invited to introduce the linkage of science learning and neuropsychology as a keynote speaker in Japan Society for Science Education 30th Annual Convention (JSSE 2006), 2007 Workshop on Critical Phenomena and Complex Systems (Academia Sinica), the 2nd Biennial Conference of East-Asian Association for Science Education (EASE 2011), and the 3rd Cross-Strait Conference on Statistical Physics. The main research target is to establish a long term database of brain, education, and development. The members include two medical doctors (Dr. Yuh-Te Lin and Dr. Ching-Sen Shih), nine Ph. D. students, and three master students. The instruments in the laboratory included Synamps2 High End DC amplifier (Electroencephalography), iView X Hi-Speed and iView X RED (Eye movement tracking system).

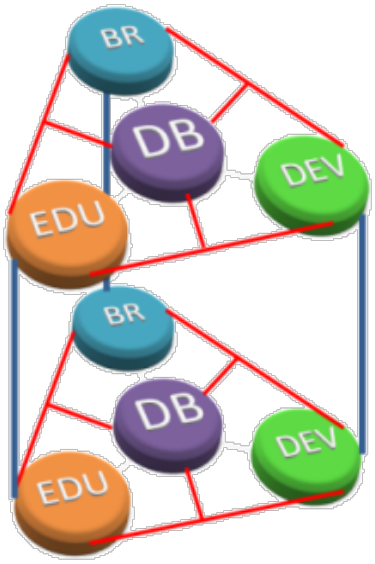
There are five researches going on currently. The first research is to investigate the factors which influence how students process 2D and 3D representations on learning chemical structures with Event-Related Potentials (ERPs) and eye movement tracking. Previous researches mentioned that students have difficulties learning 2D and 3D chemical structures because students need to use integrated abilities which include attention, representation recognition, visualization, spatial abilities and mental rotation. The research tries to determine the role of each of the abilities on learning chemical structures.

The second research is to explore proportional reasoning used by students to solve the ratio problems in different representations by eye movement tracking. The data analysis on the indicators of fixations, saccade, and scan-paths of eye movement demonstrated that students used different strategies (rules) to solve ratio problems with different representational types.

The third research uses Electroencephalography (EEG) to investigate the emotional effects on the scientific creativity and how the brain functions when participants applied the creativity to solve problems. The θ band is the indicator to judge the use of creativities. The results indicate that negative emotion has positive effects on increasing scientific creativity for children and adults while the positive emotion will improve the scientific creativity only for children.

DB (Database):
Database of BR, DEV and EDU

DEV (Development):
The participants' age involved 6-90 years old.



EDU (Education):
Chemical Structures Learning, Mathematics Learning Symbolic Learning, Scientific Creativity

BR (Brain):
Attention, Mental Rotation, Representation Recognition, Visual and Spatial Abilities Emotion

Main Researchers in lab:
Ph.D. Students: Chin-Fei Huang, Ming-Hsun Shen, Chi-Lin Liang
Master Students: Hsin-Yi Chiu, Ping-Ying Chiang, Ching-Ting Ho

The fourth research is to explore the memory functions of the brain in Alzheimer patients for providing assistances for diagnosing the early stage of Alzheimer and also providing insights for students' science learning. The fifth research is a cross-country research about the children's developmental procedure which is collaborated with Professor Dénes Szücs at University of Cambridge.

Indigenous Science Education in Taiwan

Huei Lee (National Dung-Hwa University)

A trend in science education with the rise of constructivism, the perspective of multiculturalism has become the issue in the major journal of science education since 90'. For example, Science Education began the discussion of multicultural science education since 1993, simultaneously study on science and mathematics learning in indigenous students has become important. New Zealand, Australia, Hawaii, Alaska, Canada and other places have become a pioneer in this domain both in research and practice. In contrast, Taiwan, in spite of being the origin of the Austronesian, was of insufficient level of attention, although the research started some time ago.

In response to the needs of indigenous communities and follow the world trend the Council of Indigenous Peoples was formally established in Taiwan in 1996, to coordinate and plan indigenous affairs. In 1998, the Government issued the "Indigenous Education Act," demanding to "indigenous people as the subject in indigenous education, the Government should promote indigenous education based on the principle of diversity, equality, autonomy and respect," and "all schools should take multi-cultural perspectives into related courses and teaching materials, and should incorporate the history, culture and values of the various indigenous communities to promote understanding and respect among populations."

Moreover, science educators in Taiwan began to notice indigenous issues at the early 90'. This paper shows the National Science Council (NSC) funded projects as the basis to introduce this field in recent two decades of research profiles.

From 1994 to 1999 in eastern Taiwan which indigenous population is high, several researchers who engaged in elementary science teacher education and faculty of National Hualien Teachers College (now incorporated into the National Dong Hwa Univ.) and National Taitung Teachers College (now transformed into National Taitung Univ.), conducted indigenous science education research. They were the earliest research projects in this field funded by the NSC. These studies followed the important issues at that time (such as students' preconception), but only focused on the indigenous students.

In 1998, Li-Yu Fu, the Professor of National Tsing Hua Univ., implemented a three-year project, and published the article "Science education for the aboriginal school in Taiwan: A world view perspective" in Taiwan's main science education journals (Chinese Journal of Science Education) in 1999. This is Taiwan's first paper based on the indigenous cultural perspectives in science education research. Prof. Fu has long been engaged in this area, not only established the first web site in indigenous science education, the Yapit website (http://www.yabit.org.tw/index.php), but also produced a series of cultural-based scientific cartoon. In recent years, collaborative business company (ASUS) co-sponsored the indigenous student science fair competition, to promote science education for aboriginal students. In order to avoid scattering research efforts, NSC integrated indigenous science education research in 2004, commissioning Prof. C-J. Guo and Prof. H-S. Lin, the current Chair Professor of Changhua Univ. of Education and a professor at National SunYat-sen Univ., two of three-year projects; "A Study on the Theory and Practice of Teaching and Learning in Science and Mathematics for Indigenous Students, 2004~2007" and "Analysis and Applications of Scientific Knowledge Imbedded in the Daily Lives and Culture of Indigenous People, 2007~2010." (Prof. Guo retired in 2009, successor is T-H. Hsiung).

More than twenty researchers invited to the joint integrated research. The project aimed firstly to investigate scientific knowledge and technological applications that are imbedded in traditional culture of the indigenous people and in their daily lives, and secondly to develop instructional materials integrating science and culture, to make exhibitions of artifacts pertaining to popular science in science museums, and to develop the commercial products associated with traditional indigenous culture to provide better learning environments for indigenous students and to let the general public understanding more about indigenous culture. The program not only began a systematic study from a cultural perspective, but also has laid a solid foundation for many new researchers to train for the subsequent research.

In 2008, In order to promote indigenous science education, the NSC formulated the 'Indigenous Science Education Action Program.' The goal of the Program was to promote popular indigenous science education and to enhance the competitiveness of indigenous people. In the seventh paragraph of the Act Program, it said "the Office for project planning, execution, coordination and effective evaluation should be established." The Program Office for Aboriginal Science Education then set up in December 2008, presided by Lan Hong, professor of the National Central University. Since 2009, seven research teams were integrated to implement their project for four years. In other words, this time the indigenous science education not only studied but also included the implementation and extension. The Program operation foci include: the development of Indigenous science curriculum and instruction, the preparation of science teachers in indigenous area, the promotion of population science activities, building of indigenous science education website, and conducting the effective evaluation of the program.

On the other hand, some researchers who engaged originally in this field were committed to the individual prospective projects. For example, T-H. Hsiung in National Taitung Univ. to "A Study of Indigenous Culturally-Responsive Teaching for Learner-Centered Integrated into Science Teaching" and "A Itinerant Service of Creative Science Experience and Implementation for Aborigines View-Pointed Schools of Morakot's Disaster Area in Taitung," and S-C. Jiang in National Pingtung Univ. of Science & Technology, S-C. Chien in National Taiwan Normal Univ., S-L. Hwang in National Chung Hsing Univ. are also carried out related research.

For example, the Taiwan Indigenous TV, funded by CIP(Council of Indigenous people), produced the "Little Science Hunters" program that is the first indigenous science education TV programs in Taiwan, to understand the ancient tribal relics and traditional culture from a scientific perspective, to promote hands-on science by simple materials in their life, and to understand scientific principles and applications from the process of making and playing, and then re-realize the wisdom of the elderly tribal cultural and spiritual awareness. In the international cooperation and interaction, the research team led by Prof. Hsiung interaction with M. Ogawa in Kobe Univ., Japan, R. Barnhardt in Univ. of Alaska Fairbanks, M. Fleer in Monash Univ., Australia, D. Sutherland in Univ. of Winnipeg, Canada, held Indigenous Education Conference in Science & Mathematics in Taitung Univ. in May of each year (this year is 5/27, 28). On the other hand, the team of Providence Univ. & National Dong Hwa Univ. led by Prof. C-F. Yen developed place-based education science instructional modules in Nantou and Hualien, and with internationally renowned scholars, such as G. Aikenhead and L. Yore in Canada, P. W. U. Chinn in Hawaii, E. Abrams in Univ. of New Hampshire, US and other cooperation, they co-organized Symposium in each NARST Annual Conference since 2008, it has made the indigenous science education research in Taiwan into the international cooperation.

Science communication: an extension of science education in a technological society

Chun-Ju (Jerome) Huang (National Chung-Cheng University)

Science education is usually emphasized on the science teaching of the elementary or secondary schools. With the prevalence of communication technology, mass media has largely changed the communication patterns of science knowledge and even science learning styles. For this reason, "out-of-class" and "informal" science learning experiences are especially important. Science communication, therefore, has become an inevitable factor in contemporary science learning.

In such a changeable and diverse era, various mass media have become the "culture skin" for people to know the world and to access the latest knowledge (Kerckhove, 1995). Regarding the communication of science, mass media not only transmit scientific messages, but they also shape the scientific information (Dimopoulos & Koulaidis, 2002). In other words, when mass media provide people with science-related news, they are actually instructing people how to comprehend and how to focus on the news. When facing an ever increasing amount of socio-scientific issues especially, informed citizens should possess scientific literacy as well as media literacy. With this knowledge, they can determine the authenticity and the correctness of the given scientific information. People should be able to participate in discussions and decision-makings during relevant public issues.

Media science is often the important medium in which people can understand science or socio-scientific issues. It is also a crucial channel for one to be continuously connected with science activities after leaving schools. The quality, the view, and the dimension of media science indirectly determine how citizens in a technological society think and act when facing science-related issues. These questions, emanating from traditional science education, are still not given enough attention. They require much more in-depth research.

If science communication is the extension of science education, what other problems should be further discussed? Science and media are not two independent cultural entities, but they have interactive relationships. For instance, science will affect the trend of media, while media could also influence the process of science. With the "culture diamond" theory, proposed by Griswold (1994), factors of a "science event" transmitted in the society could be classified into four dimensions. They are namely society, producer, text, and audience. Society refers to the social context of the science event, including the political, economic, historical, and cultural background at the time. Producer indicates the product with specific scientific or technological contribution. This could simply be a scientist or a relevant research unit. Text is regarded as various discourses which could intermediate scientific achievements. It could be the scientific information or news published in a newspaper, media, magazine, or internet. Audience covers the masses who receive the message.

Concerning the relevant science communication studies, there are several research questions worth further discussion within the four areas (Huang & Jian, 2010). These can also be regarded as the extensions of science education in the technological society.

(1) Researches in the Text area

Science and media show qualitative differences within narrative and knowledge structures. In this case, how do media represent the textual knowledge of science? Which framework do the media consistently use to interpret scientific information? How do the media produce science news? What are appropriate models for communicating science information? What capabilities and characteristics should a science journalist possess? How should reporters interact with scientists?

(2) Researches in the Producer area

Regarding the communication within science activities, how do popular media affect the knowledge exchange among scientific communities? How are various scientific knowledge and messages exchanged among scientists? In terms of communication outside science activities, what kind of media-public relations staff is required in the technology industry? How does the technology industry manage the relationship with media? How do scientific communities explain scientific research outcomes to the society and to the public? How does the industry discuss the possible risks and uncertainty? Finally, how should scientists and technicians cope with reporters or journalists?

(3) Researches in the Audience area

In regard to the characteristics of the audience, what are the characteristics of various types of audiences, including students, housewives, working class, and ethnic minorities that allow them to read and comprehend science? In addition to newspapers or basic news, what are effects of different science communication channels (such as religious channels, health related talk shows and home shopping channels) on the audience? Regarding education and public participation, what are effects of science fairs and museums? How do we utilize media science materials within science teaching? Also, what are learning outcomes on students' attitudes towards science?

(4) Researches in the Society area

Using macro analyses, what is the interactive model between science and media in the modern society? How do different local cultures affect the view of science in society? How do media affect science and how does science influence media? In the entire social context, how does the society accept and refuse science?

Science communication is not only the channel for the public to obtain the latest scientific knowledge; it is also the interactive platform among the public, society, and science researchers. This research trend can be shown by two flourishing international journals, namely Science Communication and Public Understanding of Science. Moreover, International Journal of Science Education publishes another part (Part.B) to deal with these related topics and entitle as "Communication and Public Engagement". In this new part, it aims to bridge the theory and the practice of science communication. It also attempts to communicate among various age-groups of scientists, engineering, media, journalists, and decision makers. Finally, it tries to propose rational discourses on science and technology based on individuals, society, economy, and culture levels (http://www.tandf.co.uk/journals/RSED).

Apparently, international science education communities are actively responding to this new trend. The development of science communication research actually tends to react to some new social problems and phenomena. This new perspective not only could stimulate new possibilities for science education, but also could further expand science learning to a real world.

Pursuit of the Sustainability of Science Education

Nelson C. C. Chen (National Science & Technology Museum, Taiwan)

In 2009, the National Science and Technology Museum (NSTM) fully utilized external resources and linked the network of the industrial, public and academic sectors to push forward a series of improvements based on the three administrative targets: "create a friendly environment", "upgrade the quality of professional service", and "accumulate the capital of sustainable development".

To achieve the spread of science education, enrich learning resources, and expand the audiences' depth and breadth in science knowledge, the NSTM specially designed a series of science education activities targeted at audiences of different ages, including active ageing science for the children, energy conservation and reduction of carbon emissions, and science for children in the rural areas. The NSTM brings science into people's lives and proactively expands learning opportunities for all citizens in the nation. In terms of collection, the NSTM set the core objective and sought nationwide historical relics that are significant to the history of Taiwan's industrial development. These relics were then archived digitally and documented based on relevant studies and discussions of industrial cultural relics; through which, the NSTM facilitates research and application of technological civilization. With the efforts of all members of the NSTM, we have achieved a fruitful year and we will continue to maintain our operations at the high standard created this year.

Learning how a Segway works with its gyroscope-like wheel

Water purification with the hand-made purifier

In recent years, the subject of global warming has raised heated discussions worldwide. Protecting resources on earth has become an urgent matter for all societies in the world. As an institution of social education, the NSTM will take on the responsibility and proactively respond to the needs with its technology and resource advantages. Looking into the future year, the NSTM will strive to facilitate sustainable development in all four dimensions of environment, society, economics, and culture, through museum operations in response to the trends in the overall environmental and social issues. And in action, we strive to build a green museum based on the motto "bringing life into technology and bringing technology into life".

To fully manifest a museum's spirit in sustainable development through its tangible architecture, exhibitions, educational events, and museum collections, the key lies in the intangible human resources; accumulation and reinforcement of manpower, as well as cultivating an organizational culture, will be the essential tasks. Therefore, in the future, the NSTM will take a proactive stance to develop employees' professional knowledge, share internal knowledge and information, implement a well-designed system of job delegation and authorization and establish high-standard organizational commitment. We aim to continuously improve and strive for higher efficiency; our commitment constitutes a powerful force to achieve ever-expanding effects. We expect all our managers to act as five-star leaders with distinguished qualities such as modesty and commitment to professionalism, and we expect our leaders to value the staff's knowledge and abilities and place them in the most suitable positions, so that we will create an organization with unobstructed communication. I believe that, with the professionalism and enthusiasm of all our staff and contracted employees, we will be able to consolidate the special attributes of a museum to extend our organization's creativity into infinite possibilities. We will create a sustainable "green museum" shared by all citizens in the nation and make "going to the science museum" an enjoyable adventure for all.

The NSTM organization is made up of 4 divisions and 3 offices, which consist of the Collection and Research Division, the Exhibition Division, the Technology Education Division, the Visitor Service Division, the Secretariat, the Personnel Office and the Accounting Office. The major functions for each division are:

Collection and Research Division: Responsible for the collection, preservation, research and appraisal of technological artifacts, academic exchanges, as well as editing and printing of publications.

Exhibition Division: Responsible for the planning, design, building, operation, maintenance and management of exhibits and theater programs.

Technology Education Division: Responsible for the planning and implementation of technology education (see pictures).

Visitor Service Division: Responsible for advertising, marketing, ticketing, tours, visitor services, volunteer services and community relations.

National Biodiversity Action Workshop for College Students in Taiwan

Ting-Chiao Wang, Pei-Ying Wu & Montzy Cheng* (National Changhua University of Education)

The main goal of the National Biodiversity Action workshop for college students is to disseminate the importance of biodiversity and further to arouse college students' attention to issues of biodiversity and conservation. As a junior in college whose major is Biology and who is also enrolled in a teacher education program, I would really like to know what biodiversity is and how to teach the concepts of biodiversity and conservation in a secondary science class. Therefore, I attended this one-day workshop held by Taipei Zoo and the Society for Wild Life and Nature (SWAN) on March 5, 2011.

The teaching materials used in the workshop, Window of Wild WOW, are a modified version of "Window on the Wild: Biodiversity Basics" which is a set of books developed by the World Wildlife Fund in the US. It is designed not only to convey scientific content regarding biodiversity and conservation to students, but also to provide many strategies and activities that help teachers to effectively teach these issues. The lectures in the morning focused on introducing the basic concepts of biodiversity and the lecturers employed many hands-on activities and games that helped us to learn by doing in a very interesting way. In addition, the lecturers explained to us the pedagogical philosophy embedded in "Window of Wild WOW" and demonstrated how it can be used as a teaching and learning tool in science classes.

In the afternoon, we were asked to divide into several groups and each group was assigned a topic of biodiversity. We had to develop our own teaching strategies and activities and discuss executing considerations in terms of the topic we were assigned to work on with our group members. All of the groups needed to demonstrate their curriculum design and got immediate feedback from the lecturers and other participants. This really helped me a lot in thinking about what science is and how to teach it. Actually, science is not merely about dealing with scientific knowledge such as theories or hypotheses, but is related to many social and technological issues profoundly impacting our lives and those of our descendants. Therefore, science should be taught in a way that allows students to think critically and address their concerns on issues regarding biodiversity and natural resource conservation.

I think I learned a lot from those activities provided by the workshop and because of it, I have a firmer belief in teaching science and what kind of science teacher I would like to be.

Yuan T. Lee Science Camp for Elementary School Students

The Yuan T. Lee science camp for elementary school students is hosted biannually by the College of Science at National Changhua University of Education and the Yuan T. Lee Foundation of Science Education. The Foundation was established by Yuan-Tseh Lee, who is not only a famous scientist but also an enthusiastic science educator in Taiwan, to make every effort to improve the scientific literacy of the masses. The Yuan T. Lee science camp for elementary school students places its focus on enlightening students' comprehensive understanding of science, and fostering their interests in science. Most of the classes provided are inquiry-based and include hands-on activities, and all of the camp lecturers are professors of the College of Science at National Changhua University. I am very pleased that I had an opportunity to join this camp on January 24-28, 2011 and act as a group leader who helped and facilitated those elementary school students to do these scientific experiments and activities.

The camp offered many interesting activities that helped the students to solve problems in scientific ways. The students could learn how to complete a task by themselves and their problem-solving abilities could therefore be improved. In my opinion, the camp is really meaningful because students in Taiwan have few classes like this in school. Thanks to the camp, our students have opportunities to expand their hands-on experience. More than that, it really enhanced the students' interest in learning science owing to the fun atmosphere of the camp.

Because of the above reasons, the camp attracts many students to sign up every year. Therefore, lots are drawn to choose the lucky students who can participate. Actually, this is my second time to join the camp. Although it makes me really tired. I still love it. I have learned a lot by participating in the camp. My knowledge is increased and my attitude toward science is improved.

Moreover, I also learned a lot of practical manners in dealing with affairs and getting along with people. Most important of all, I found my hobby and what I really want to do in my whole life because of the camp. Hence, I think the Yuan T. Lee science camp is beneficial for both children and adults who take part in it and I believe the camp contributes a lot to science education in Taiwan as it helps in cultivating more and more science professionals.

Constitution of EASE
東亞科學教育學會規程

1 Name and Status

1.1 The name of the association shall be 'The EASE (East-Asian Association for Science Education), referred to as 'The Association'. The Association comprises members from regions including China Mainland (中國大陸), Hong Kong(香港), Japan(日本), Korea(韓國), and Taiwan (臺灣). These regions are referred to as 'The Constituent Regions'.

1.2 'Science Education' shall refer to all aspects of education in respect of the natural sciences including physics, chemistry, biology, earth science, environmental science, general science, and applied science for learners of all ages.

1.3 'Research' shall refer to all forms of systematic inquiry.

1.4 The Executive shall, if necessary, establish the legality of this Constitution under national or international law as appropriate.

2 Aims

The aims of The Association shall be:

2.1 to enhance the range and quality of research, teaching and learning in science education in East Asia, in particular, those related to the culture and heritage of The Constituent Regions;

2.2 to provide a platform for collaboration in science education among The Constituent Regions;

2.3 to seek to relate research to the policy and practice of science education in The Constituent Regions;

2.4 to represent the professional interests of science education researchers in The Constituent Regions;

2.5 to foster links between science education researchers in The Constituent Regions and similar communities elsewhere in the world.

3 Membership

3.1 Personal membership of The Association is open to anyone who has interests in science education research.

3.2 Applications for personal membership shall be made on the Application Form provided.

3.3 The title and privileges of being a 'Personal Member of the Association' shall only be enjoyed by an individual over a period for which all the dues required by The Association have been paid.

3.4 Organizational membership of The Association shall be open to organizations which have a constitutional interest in research in science education.

3.5 Applications for organizational membership shall be made on the Application Form provided.

3.6 The title and privileges of being an 'Organizational Member of the Association' shall only be enjoyed by an organization over a period for which all the dues required by The Association have been paid.

4 The Executive

4.1 Decisions made on behalf of The Association shall be taken by The Executive.

4.2 Each personal member shall have the right to one vote in any election concerning The Association.

4.3 The Executive shall consist of elected members, with two to four representatives from each constituent regions of The Association. All nominations must be supported by a proposer and a seconder, who are Personal Members of The Association. The proposer and the seconder must also be coming from different Constituent Regions. Each of those elected will serve for four years. However, arrangements should be made as far as possible such that about half of the members on the Executive will be re-elected in every other two years to ensure smooth transition and continuity of work of The Association.

4.4 President, Vice-president, Secretary, and Treasurer will be directly elected among the elected members of The Executive. The term of office for each of the above-mentioned office bearers will be two years.

4.5 If a position on The Executive falls vacant, The Executive shall fill it by whatever means they deem necessary and which do not contradict the above conditions, until the next occasion for an election.

4.6 The duties of the President shall:

a. take charge of the affairs of The Association, including presiding the Biennial Conference of The Association;

b. serve as a Chair of The Executive;

c. be or designate a representative to affiliate organizations;

d. serve as or designate a representative as spokesperson for The Association.

4.7 During the Biennial Conference, The Executive will present a written report, which shall include Audited Accounts, of The Association. This report will be uploaded onto the official website of The Association for perusal by Members who are not present at the Biennial Conference of The Association. In years when the Biennial Conference does not take place, the written report will be sent to all Members and posted on the website.

4.8 The Organizer of the next Biennial Conference of The Association (which shall be organized to support communication on research matters between members of The Association and with others) shall automatically be co-opted on to The Executive.

4.9 Elections to The Executive shall, wherever possible, take place during a Biennial Conference of The Association such that results may be announced at that Conference.

4.10 Amendments to The Constitution either shall be proposed by a majority decision of The Executive or shall be proposed by at least thirty other Members of The Association who, in turn, must be coming from at least three of The Constituent Regions.

4.11 An amendment to The Constitution shall be agreed by a two-thirds majority of the members of The Association who vote in the ensuing referendum.

4.12 The Headquarter of The Association shall be established in a City at the discretion of The Executive.

4.13 Important documents produced in the course of Association business shall have an abstract in at least two different Asian languages.

5 Activities

5.1 The activities of The Association shall be addressed by such means as The Executive shall decide.

5.2 These means shall include the organization of Boards and shall include the organization of the Biennial Conferences of The Association.

5.3 The costs of each activity conducted on behalf of The Association shall be met by, or on behalf of, the activity, less any administrative input that The Executive shall decide to make. Any surplus generated by an activity shall be the property of The Association.

5.4 In order to conduct the business of The Association, The Executive shall be empowered both to collect an Annual Membership Fee from personal and Organizational Members of The Association and to make applications to Fund-Awarding Bodies on behalf of The Association.

Join us !

For membership of EASE: It costs only US$20 a year to be a member of EASE (US$10 for student).

For more information: Just visit EASE Website http://theease.org/

Don't hesitate to contact me for further information. *Young-Shin Park (Chosun University, Korea, easeheadquarter@gmail.com)*

"The most important thing in communication is to hear what isn't being said."-- Peter F. Drucker, Management Expert