International Council of Associations for Science Education

Supporting and promoting science education internationally
The ICASE Newsletter

July/August 2021

Welcome to the ICASE July/August 2021 Newsletter!

Welcome to the ICASE July/August 2021 Newsletter! The ICASE Newsletter is a publication containing current information about ICASE initiatives conducted by ICASE member organisations, and topics of interest in the field of science education. The table of contents for this issue is in the right-hand column.

The International Council of Associations for Science Education (ICASE) was established in 1973 by leadership at the United Nations Educational, Scientific and Cultural Organization (UNESCO) to link national science teacher associations and to extend and improve science education for children and young people throughout the world. Today, ICASE is a network of science teacher education associations, institutions, foundations and companies, working together to promote science and technology education internationally. ICASE facilitates communication and cooperation at national, regional, and international levels. The ICASE Strategic Plan (2013-2023) calls for ICASE member organisations to adopt a position of Excellence and Leadership in Science Education.

International Council of Associations for Science Education

Over the past 48 years, more than 200 organizations have been members of ICASE. Currently, there are 32 organizations from 30 countries contributing to the financial administration of ICASE.
www.icaseonline.net/membership.htm

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ICASE Annual Membership Update

Please renew your organizational ICASE member fees!

We are updating our records, please complete the ICASE member information sheet found on our membership page: https://www.icaseonline.net/membership.html

Membership fees are due January 1st each year and three-year options are available at a reduced rate! Membership renewal is easy and can be done totally online on the ICASE Website at: http://www.icaseonline.net/membership.html and a receipt will be sent to you. If your organization needs to receive an invoice, please notify us to request an invoice.

ICASE provides opportunities for member organizations and their representatives to promote excellence and innovation in science teaching and learning for all through:

- connections to the members of other science organizations around the world;
- opportunities to serve in ICASE international leadership positions on standing committees and in international research initiatives;
- communication venues to disseminate information internationally to the members of international science organizations through the ICASE listserv, newsletter and peer-reviewed ICASE journal;
- collaborative funding opportunities to promote science education at regional levels; and
- organization of ICASE World Conferences, regional events, and workshops providing opportunities for professional development and networking.

How are your membership fees put to use?

ICASE membership fees are used for financial support of regional activities.

Approval for funding will be considered based on a written submission (request for funding support) to the ICASE secretary, which clearly indicates how the activity meets the following criteria.

All financial support for activities will be approved by the ICASE management committee, in consultation with the Executive Committee, and is subject to the availability of funds (generated by ICASE membership fees).

Procedure to request financial support of regional activities

1. The applicant organisation must be a current financial member of ICASE.
2. The activity must promote science education at a regional level.
3. The applicant organisation should provide a description of the activity and the potential benefits (including the extent of benefits - number of beneficiaries, and how the activity meets the short-term and long-term goals of promoting science education in that region).
4. ICASE must be acknowledged as a sponsor on all publicity material, including the website advertising the initiative. The ICASE logo must be displayed on all materials associated with the funding.
5. Funding requests will be accepted for the following range in US dollars: $500 – $2,000. These funds are intended to cover special initiatives associated with activities occurring in benefit of each region.
6. The applicant organisation must provide a budget for the activity including other sources of funding.
7. The applicant organisation must have an institutional bank account for the transfer of funds.
8. The applicant organisation must nominate a person in their organisation who will take responsibility for the activity, all expenditures and reporting (via presentation and in writing) at the subsequent ICASE World Conference.

The report may be presented via video conferencing if the organization is unable to fund a member to attend an ICASE World Conference. Please note that the ICASE Management Committee reserves the right to approve funding for second and subsequent applications from the same region within a three-year period, even when the application may come from a different organisation.

BECOMING A MEMBER ORGANISATION

ICASE invites national, sub-national and multi-national organisations interested in the promotion of science and technology education to join its worldwide network. Organisations eligible to join are Science Teacher Associations (STAs), Science Societies, Institutes, Universities (or University Departments/Faculties), Industries, Companies, Centres and Museums. These organisations may have a sole interest in science education (or in one of its sub-disciplines such as biology, chemistry, physics, Earth sciences, etc.) or have wider interests, one of which is science education. Following the ICASE Constitution, requests for new members, whether full or associate, are approved by the ICASE Executive Committee.

ICASE provides opportunities for member organizations and their representatives:

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- connections to the members of other science organizations around the world;
- to serve in ICASE international leadership positions on standing committees and involvement with international research initiatives;
- to disseminate information internationally to the members of international science organizations through the ICASE listserv, newsletter and peer-reviewed ICASE journal;

- to obtain collaborative funding aimed at promoting science education at regional levels; and
- to participate in ICASE World Conferences, regional events, and workshops providing opportunities for professional development and networking.

In addition, ICASE member organizations and their representatives receive reduced conference registration fees for attendance at all ICASE World Conferences. http://www.icaseonline.net/membership.html

Renew your organizational ICASE member fees and contribute to the leadership mission and vision of ICASE.

Are you interested in becoming more involved in ICASE?

Begin by connecting with your ICASE Regional Representative and joining ICASE Committees of interest.

Contact information for the ICASE Executive Committee, including the Management Committee, Regional Representatives, and the Chairs of all ICASE Standing Committees can be found at the end of this newsletter and on the ICASE Website.

ICASE President Prof. ZHANG BaoHui received East-Asian Association for Science Education (EASE) 2021 Distinguished Contribution Award

Dr. Sarfraz Aslam

The Annual Meeting (online) of the East-Asian Association for Science Education (EASE), hosted by Shizuoka University, Japan, was successfully held recently. The theme of the conference was: Asian Cooperation for the Development of New Science Education for the Future - Smart Preparation with Sustainable Development Goals (SDGs) and Science, Technology, Engineering and Mathematics (STEM) (https://www.ease2021.org).

The conference highlighted science education, STEM education and UNESCO's sustainable development plan in the era of COVID -19. It promoted good collaboration among countries, disciplines, and industries worldwide to find and address issues of common concerns in the era of globalization through science education and research.

The East-Asian Association for Science Education (EASE, https://theease.org), founded in 2009, is co-founded by Science Education researchers in East Asia. It aims to provide a strong support platform for science and education exchange and cooperation in East Asia. Its members come from 7 countries and regions, including South Korea, Japan, Mainland China, Hong Kong, Taiwan, Thailand and Indonesia. The conference also discussed the possibility of upgrading the society to the Asian Science Education Association.

Six "EASE 2021 Distinguished Contribution Awards" were finalized after peer recommendation and voting by a committee composed of executive members from the seven member countries and regions . Professor ZHANG, president of the International Council of Associations for Science Education (ICASE), is the only recipient of this award from mainland China. The award is held every two years and aims to recognize and reward individuals who have made a significant impact and outstanding contributions to science education in member countries and regions. Below is the award plaque just received from Japan.

Professor ZHANG won the award with mainly the following reasons: service to EASE as its executive committee member; long-term involvement in helping organizations and individuals to carry out international exchanges and collaboration at home and abroad; international student education; leadership in international and domestic academic organizations; service on English and Chinese journals as a chief editor, associate editors or editorial board members; especially publishing highly cited academic works in Chinese and English, these publications reported his and his collaborators' efforts in K-12 school or teacher education reform.

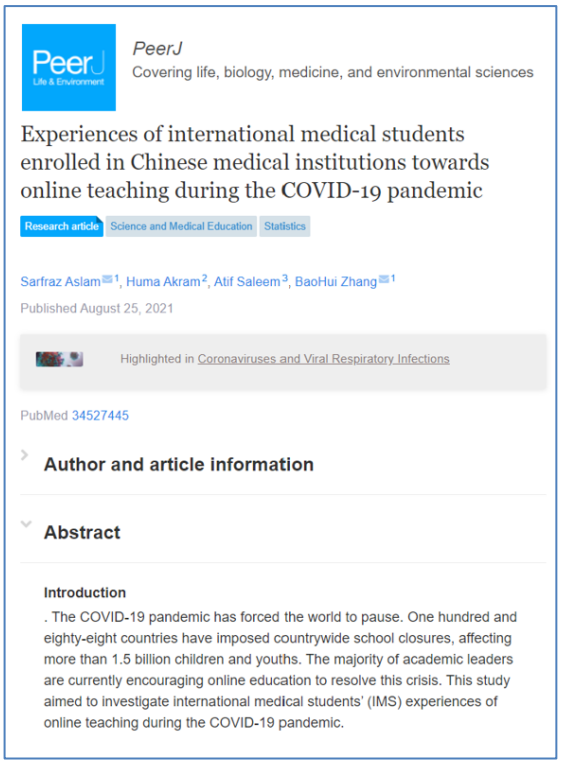
ICASE Spotlight: Responses to COVID-19

Dr. Teresa Kennedy and Dr. Sarfraz Aslam

The COVID-19 pandemic posed unprecedented challenges worldwide, impacting public health, societies as a whole, and economies around the world. The international education and scientific communities have shown their resiliency by pushing forward and encouraging the sharing of knowledge.

As we all know very well, teaching is an incredibly challenging profession, and most of us have made significant adjustments in our teaching and research activities as a result of the pandemic. In the spirit of disseminating activities and findings, we would like to share a few recent publications and ask that you send us your published activities for future spotlights highlighting education and research activities occurring in response to COVID-19.

Please send your information to: Dr. Sarfraz Aslam, ICASE Secretary, at **miansarfraz@hotmail.com**
We begin this Spotlight series with three recent publications. We look forward to receiving your information for inclusion in future **Spotlights.**



PeerJ
Covering life, biology, medicine, and environmental sciences

Experiences of international medical students enrolled in Chinese medical institutions towards online teaching during the COVID-19 pandemic

Research article | Science and Medical Education | Statistics

Sarfraz Aslam[1], Huma Akram[2], Atif Saleem[3], BaoHui Zhang[1]

Published August 25, 2021

Highlighted in Coronaviruses and Viral Respiratory Infections

PubMed 34527445

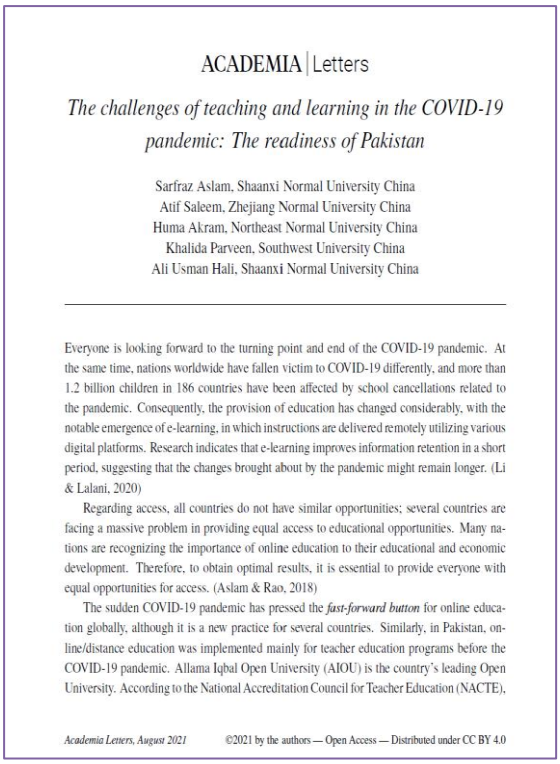
Author and article information

Abstract

Introduction

. The COVID-19 pandemic has forced the world to pause. One hundred and eighty-eight countries have imposed countrywide school closures, affecting more than 1.5 billion children and youths. The majority of academic leaders are currently encouraging online education to resolve this crisis. This study aimed to investigate international medical students' (IMS) experiences of online teaching during the COVID-19 pandemic.

Citation: Aslam, S., Akram, H., Saleem, A., & Zhang, B. (2021, August 25). Experiences of international medical students enrolled in Chinese medical institutions towards online teaching during the COVID-19 pandemic. *Journal of Life & Environmental Sciences (PeerJ).* https://peerj.com/articles/12061/



ACADEMIA | Letters

The challenges of teaching and learning in the COVID-19 pandemic: The readiness of Pakistan

Sarfraz Aslam, Shaanxi Normal University China
Atif Saleem, Zhejiang Normal University China
Huma Akram, Northeast Normal University China
Khalida Parveen, Southwest University China
Ali Usman Hali, Shaanxi Normal University China

Everyone is looking forward to the turning point and end of the COVID-19 pandemic. At the same time, nations worldwide have fallen victim to COVID-19 differently, and more than 1.2 billion children in 186 countries have been affected by school cancellations related to the pandemic. Consequently, the provision of education has changed considerably, with the notable emergence of e-learning, in which instructions are delivered remotely utilizing various digital platforms. Research indicates that e-learning improves information retention in a short period, suggesting that the changes brought about by the pandemic might remain longer. (Li & Lalani, 2020)

Regarding access, all countries do not have similar opportunities; several countries are facing a massive problem in providing equal access to educational opportunities. Many nations are recognizing the importance of online education to their educational and economic development. Therefore, to obtain optimal results, it is essential to provide everyone with equal opportunities for access. (Aslam & Rao, 2018)

The sudden COVID-19 pandemic has pressed the *fast-forward button* for online education globally, although it is a new practice for several countries. Similarly, in Pakistan, online/distance education was implemented mainly for teacher education programs before the COVID-19 pandemic. Allama Iqbal Open University (AIOU) is the country's leading Open University. According to the National Accreditation Council for Teacher Education (NACTE),

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Citation: Aslam, S., Saleem, A., Akram, H., Parveen, K., Hali, A.U. (2021). The challenges of teaching and learning in the COVID-19 pandemic: The readiness of Pakistan. *Academia Letters*, Article 2678. https://doi.org/10.20935/AL2678

ICASE Spotlight: Responses to COVID-19 cont.

At the start of 2020, online education experienced a significant increase as educators attempted to mitigate a total stop to learning, fearing their students might lose a critical year of their educational experience. This rise in e-learning, affected by school closures, challenged educators to develop meaningful and timely learning experiences that were accessible and realizable for all their students while at the same time consider diverse digital equity issues affecting full participation.

ICASE, working collaboratively with the Texas STEM Coalition and the University of Texas at Tyler, created the **COVID-19 ENGINEERING DESIGN CHALLENGE** to provide students in primary, secondary, and higher education learning environments with an opportunity to think about and reflect on challenges surrounding the COVID-19 pandemic and to develop and share their STEM solutions globally.

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Mini Review

Copy Right@ Teresa J Kennedy

Student Innovations Related to COVID-19: The International Engineering Design Challenge

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Abstract

At the start of 2020, online education experienced a significant increase as educators attempted to mitigate a total stop to learning, fearing their students might lose a critical year of their educational experience. This rise in e-learning, affected by school closures, challenged educators to develop meaningful and timely learning experiences that were accessible and realizable for all their students while at the same time consider diverse digital equity issues affecting full participation. Their drive to increase the learning potentials of their students was a testimony to teachers' commitment to the students they serve. It also highlighted educators' sense of responsibility for the academic and social well-being of their students, many of which were negotiating new learning environments at home. This paper describes student involvement in the COVID-19 Engineering Design Challenge, an international Phenomenon-based Learning (PhBL) project developed to provide students in primary, secondary, and higher education learning environments with an opportunity to think about and reflect on challenges surrounding the COVID-19 pandemic and to develop and share their STEM solutions globally.

Keywords: COVID-19, engineering design, Phenomenon-based Learning (PhBL), STEM education

Introduction

In late December 2019, a new strand of the original SARS virus (SARS-CoV-2) challenged the world [1]. At the writing of this paper, over 4 million people worldwide have reportedly died from COVID-19 [2]. "The sudden and unprecedented shuttering of our nation's school buildings due to the COVID-19 pandemic forced educators to face the most jarring and rapid change of perhaps any profession in history. Within a moment's notice, teachers were asked to leave their classrooms indefinitely and, in many cases, to recreate a learning environment that is 100 percent virtual" [3]. Children around the world spent more time online than ever before. Nearly 1.5 billion children in 173 countries were affected by school closures in 2020 [4].

As schools began to close and classes were quickly moved into online environments during the first few months of 2020, teacher stress elevated, teacher morale dropped significantly, and student engagement decreased [3]. Many teachers and teacher educators rushed to place course content online for their students in response to immediate school closures, while at the same time searching for quality activities for their students to engage in during their rapid and time-consuming transition to online teaching and learning. Teachers wanted their students to engage in more than random activities; they sought relevant and engaging projects focusing on STEM (science, technology, engineering, and mathematics) subjects that would naturally encourage their students to be creative, innovative, and learn more about the situation affecting their communities as well as others across the globe.

The University of Texas at Tyler University Academy (http://www.uttua.org/), a system of K-12 STEM Lab Schools located on three separate campuses in East Texas (USA), engaged in a COVID-19 Engineering Design Challenge in collaboration with the Texas STEM Coalition (https://txstem.org/) during their transition to an online environment in March 2020. The Challenge followed a Phenomenon-based Learning (PhBL) design. PhBL is an educational

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Citation: Kennedy, T. J. (2021, August 10). Student Innovations related to COVID-19: The International Engineering Design Challenge. *American Journal of Biomedical Science & Research, 13*(6), 592-595. https://biomedgrid.com/volume13-issue6.php or https://biomedgrid.com/pdf/AJBSR.MS.ID.001921.pdf

2020 Challenge Results:

399 students from 9 countries participated. Students were from **Argentina; China; the Dominican Republic; England; Japan; Peru; Russia; Turkey;** and **the U.S.**

Teacher instructions and the student sample project from NYC were translated into the six **United Nations (UN) languages (Arabic, Chinese, French, Russian and Spanish), plus Japanese, Portuguese, and Turkish.**

Steps to participate in the 2021 Challenge:

1. Students brainstorm about the current situation and identify a potential need/solution related to the world-wide COVID-19 pandemic.

2. Students describe the issue they identified and their idea(s) for potential solutions through freehand drawings or using drawing software available on their computers; building simple models of their designs with items found in their home or schools; writing research reports; and engaging in detailed discussions.

3. Students share their engineering designs widely (with other students, their family members, and their communities).

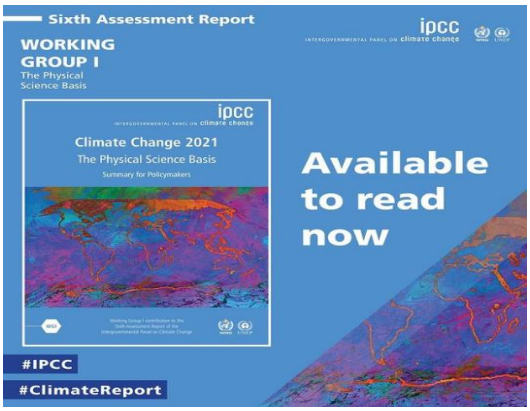
Join us in 2021 Engineering Design Challenge!
For more information, email tkennedy@uttyler.edu

TEXAS STEM COALITION
The University of Texas at TYLER

IPCC Sixth Assessment Report Summary and Inferences for Science Education

Dr. Yasemin Ozdem Yılmaz

The Intergovernmental Panel on Climate Change (IPCC) published the latest report on climate change. the Sixth Assessment Report, which is entitled Climate Change 2021: Physical Science Basis, provides the most updated physical understanding of the climate system and climate change, combining the latest advances in climate science, and multiple lines of evidence. The report is as important as the previous reports; it has received much more attention due to the fact that on the date it was shared, the world has been experiencing the impact of climate change severely. The United Nations Secretary-General Antonio Guterres declared that the "IPCC Working Group I Report is a code red for humanity".



To provide the background, this is not the first report that the IPCC working Groups prepared. Created in 1988 by the World Meteorological Organization and the United Nations Environment Programme, the IPCC provides governments at all levels with scientific information that they can use to develop climate policies. There are three working groups and a Task Force on national greenhouse gas inventories including volunteer scientists and technical support groups working to assess the thousands of scientific papers published each year to provide a comprehensive summary of what is known about the drivers of climate change, its impacts and future risks, and how adaptation and mitigation can reduce those risks. The latest assessment report was prepared by IPCC Working Group I, whose task is to examine the physical science underpinning past, present, and future climate change.

The Sixth Assessment Report (AR6) was finalized on 6 August 2021 with 16 chapters collecting and analysing information about changing state of the climate system and human influence on it. This report especially documents the severity of anthropogenic climate change around the world. In the report, the IPCC indicated that Earth's temperature has already been increased by 1.09^{0}C (1.96 F) since the onset of industrial revolution. Compared to the previous report (AR5) in 2013, the Earth warmed 0.29^{0}C (0.52 F) more and many changes such as sea-level rise and glacier melt are now virtually irreversible.

The most striking result of the report is that the IPCC states unequivocally that most of the observed warming of the atmosphere, lands and oceans are due to human activities. The statement is that "Human influence has warmed the climate at a rate that is unprecedented in at least the last 2000 years" (p.7). The impact of human influence is currently observed in every region across the globe as weather extremes, including heatwaves, heavy precipitation, droughts, and tropical cyclones. Unfortunately, even these extremes will be exceeded during the 21st century unless an aggressive effort to reduce level of CO2 and other greenhouse gas emissions are ensured.

Education is the most powerful element of the global response to climate change. It can help reduce vulnerability to climate change and natural disasters by expanding the adaptive capacity of populations. Education is about building informed societies and informed societies is a key in changing systems. Only people with social awareness and a demand for change can force the intention of taking action. Moreover, extreme, and unexpected climate conditions due to climate change have direct effects on education, such as causing unschooling, gender gap in schooling or health problems in children. Over the longer term, incremental environmental changes are also likely to result in deteriorating livelihoods which impact upon both household expenditure on schooling and the nutritional status of children. Therefore, United Nations address education as a critical agent in the issue of climate change. UN states that "Education can encourage people to change their attitudes and behavior; it also helps them to make informed decisions." Similarly, IPCC acknowledge that education, informed by indigenous and local knowledge, can help to accelerate the wide-scale behavioral change, and also build competencies and knowledge to enhance solution finding process and adaptation required to limit global warming to 1.5°C (Kwauk, 2020). Thus, teachers should choose to act for their students to create the intended behavioral change. There are resources that can help teachers to discuss the issue with their students as part of their curriculum or an extra-curricular activity. Some of them are listed below.

In conclusion, we must all recall that education can be a powerful tool in enabling effective adaptation to climate change. Feinstein and Mach (2019) identify that protecting and deploying education infrastructure and improving relevant literacy can help to reduce vulnerability, build resilience, and enhance adaptive capacity. It is time to act.

Links for climate change:

IPCC AR6 Report:

https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_Full_Report.pdf

UN Whitepaper titled "Education is key to addressing climate change"

https://www.un.org/en/climatechange/climate-solutions/education-key-addressing-climate-change

Brief by Kwauk entitled "Roadblocks to quality education in a time of climate change"

https://www.brookings.edu/wp-content/uploads/2020/02/Roadblocks-to-quality-education-in-a-time-of-climate-change-FINAL.pdf

Office for Climate Change: Education Summary for Teachers https://forumeteoclimat.com/wp-content/uploads/2019/11/st1.5_oce_lr.pdf

NASA Climate Kids Resources: https://climatekids.nasa.gov/climate-change-meaning/

Keep the windows open

Bob Worley, FRSC, Chair of ICASE Safety

I walked into this new laboratory (then) at my school in Nottingham (UK) in 1957 at the age of 11-years old. I saw the wonderful colours of the chemicals on display, and I was hooked by the subject straightaway. Yes, this was my first laboratory. (I am not in the photo.)

ONE OF THE RE-EQUIPPED CHEMISTRY LABORATORIES.

Photograph by Nottingham College of Art and Crafts Copyright.

Compare the size of this room compared to some of the school laboratories built in the past 30 years. Forget the chemicals on the benches, and the fact that we never wore eye protection then. Look at the height of the room and the size of the windows. The working environment of the lab is as much a part of safety as those concentrated acids on the benches. Over the last 30 years the aim has been to reduce the height of the ceilings. I am 2 metres tall, and I can touch some ceilings. This was done to reduce the amount of material in a building which reduced the cost. Now cast your eyes on the windows. They opened at the top and the bottom. They were single glazed and often did not fit all that well, so they were draughty; winters were cold. Now windows are double-glazed with a very opening. I have even seen labs which had small windows at the top of the wall so there was no air-circulation in the room. The reason, we were told, was to conserve energy as coal, gas and oil stocks were becoming scarcer, costing more to buy and atmospheric carbon dioxide was increasing from 300ppm, when that photo was taken in 1957, to over 400ppm now. That of course was the green excuse but of course the main reason was to save on energy cost.

Around 15 years ago, complaints came to CLEAPSS in the UK of teachers feeling unwell, some said they were suffocating. I also experienced this during my training workshops in modern buildings. Some research was being carried out. It suggested in primary schools, poor ventilation impaired children's performance and vigilance. Students were less likely to be attentive and not concentrate on instructions given by teachers.

Unfortunately, no research has been carried in secondary schools and certainly not in science departments, but it felt reasonable to assume that the suffocating feeling was due to high levels of carbon dioxide in the room.

Even amongst adults, research showed that levels of carbon dioxide between 600 - 800 ppm could reduce concentration by as much as 30%. At levels of carbon dioxide above 1500 ppm, 79% of people reported feeling tired and above 2000 ppm nearly two thirds of participants reported being unable to concentrate. In addition, 97% of migraine sufferers reported symptoms at levels over 1000 ppm.

Chemistry education in the UK loves the Bunsen burner but burning methane was equivalent, in carbon dioxide terms, to having another class students in the room. I found that, using a simple data logger attached to a carbon dioxide sensor (used in biology), high levels of carbon dioxide (over 2000 ppm I one case) in some of the labs. This also implied high levels of volatile organic compounds from bodies and furniture. CLEAPSS recommended that rooms, with students in them, should have at least 5 air changes an hour (ach) to maintain low levels of carbon dioxide. The UK Health and Safety Executive agreed with these recommendations. But many designers and builders continued to disregard this advice because the required mechanical extraction and this would cost money.

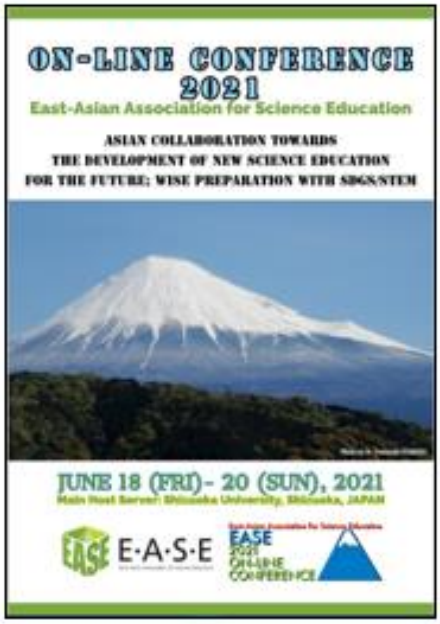
Now schools in the UK are being supplied with carbon dioxide sensors and ventilation is going to be a priority in reducing infection from the COVID-19 virus. We shall see what happens next term. These grandiose schemes in supplying technological solutions to support education often falter. Smart ventilation systems can go wrong, and the cost of repair will be expensive too.

In 1957 we wore 4 layers of clothing in the winter to keep warm. I think the next generation had better wrap up well as well this winter too.

The 2021 International Conference of East-Asian Association for Science Education (7th International Conference)

Tomotaka KURODA, Shizuoka University, Japan

The 2021 International Conference of East-Asian Association for Science Education was held on 18-20 June 2021, which the main-host university is Shizuoka University in Japan and the co-host university is Srinakharinwirot University in Thailand. See the conference website at **https://www.ease2021.org/**

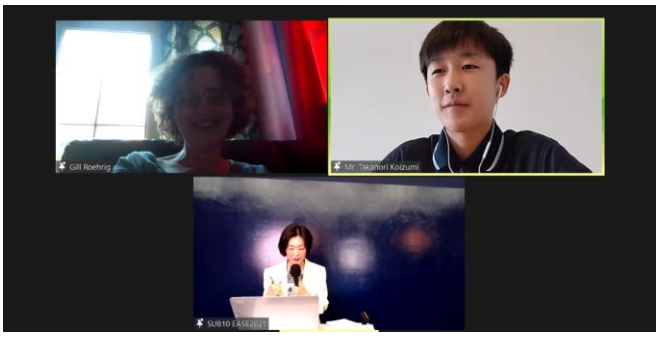


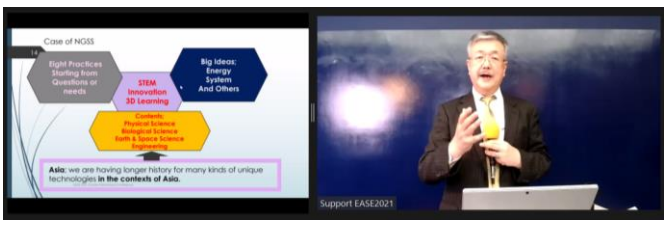
217 participants from 13 different regions (e.g. Mainland China, Germany, Hong Kong, India, Indonesia, Japan, Mongolia, Philippines, South Korea, Taiwan, Thailand, Turkey, and United Kingdom) participated on Online (ZOOM) which had the theme "Asian Collaboration Towards the Development of New Science Education for the Future: Wise Preparation with SDGs/STEM".

The keynote speeches were given by six speakers: Dr. Jeff Weld explained the practical examples of policy approaches to STEM education policy in the U.S. based on his own experience and Dr. Pradeep Maxwell Dass reiterated that 21st-century skills and SDGs are closely related to STEM education, which is an important and essential part of a truly global society. Dr. Gillian Roehrig explained the importance of integrated STEM education and its elements and spoke about how it should be developed based on a case study of the development of an evaluation scheme for classroom video. Dr. John Stiles explained the current state of development of STEM education in Southeast Asia, and Dr. Yoshisuke KUMANO and Dr. Myeong kyeong SHIN spoke about the state of STEM education in Asia, its history, and its prospects.

A total of 129 presentations were made in oral presentations (119) and poster sessions (10), and 32 sessions were held in 7 categories (e.g. 1: Science Education for Young Children and Related Areas, 2: Science Education for Elementary School and Related Areas, 3: Science Education for Middle or Secondary School and Related Areas, 4: Science Education for High School and Related Areas, 5: Science Education for Undergraduate or Graduate School Students, 6: Science Education for Informal Setting or Life-Long Learning or In-Service Teacher training, 7: Science Education for Policies and Others). A very significant feature was that more than half of the presenters were from the " Science Education for Middle or Secondary School and Related Areas " and " Science Education for High School and Related Areas) " secondary education levels of practice and theoretical research. In the Member Group Session, they discussed practical examples of science teacher training for climate change education.

As new programs for this conference, "Tutorial Session" and "Junior Session" were held. In the Tutorial Session, not only explained about the East-Asian Association for Science Education to deepen the understanding of the Association, but also introduced the follow-up to the presentations at international conferences, programs for doctoral students, and how to conduct international joint research, etc. In the Junior Session, six junior high school students who are engaged in scientific research activities made presentations on the results and challenges of their research.





This international conference was held online after changes to the style and multiple postponements due to COVID-19, and the next conference (8th International Conference) is scheduled to be held in 2022. More news will be available soon.

Australian Science Education Research Association (ASERA)

ASERA Conferences – 2021 Report & 2022 Announcement

The ASERA Board congratulates the organising committee of the conference, ***ASERA 52***, which was held in June this year. Australian states have had rolling lockdowns due to COVID and the organisers were able to quickly adapt our conference from blended mode to completely online at the last moment. More than 150 people from across the globe participated in the very successful 3-day event.

We look forward to next year's conference, *ASERA 53,* to be held in Perth from June 28-July 1, 2022.

Changes to the ASERA Board

There are several changes to our Board of Directors for 2021. We are pleased to welcome Rebecca Cooper as the new president/managing director of ASERA. We also welcome new members to the board, Reece Mills as ECR representative and general board members Carol Aldous, Jared Carpendale and Linda Hobbs. Rekha Koul and Rachel Sheffield will also join the Board for the next 12 months as convenors of *ASERA 53*. They join the on-going members Jan van Driel, Pauline Roberts, David Treagust, David Geelan and Kim Nichols.

The Board would like to acknowledge those who are finishing their tenure on the Board: Peter Aubusson, Angela Fitzgerald, Leah Moore and Kimberly Wilson.

ASERA has been fortunate to have these past and present board members who are passionate about science education research and so willing to volunteer their time to ensure the ASERA community remains a well-connected and collaborative community.

For more information,
see the ASERA website:
https://www.asera.org.au/

Preparation of the 7th ICASE World Conference on Science and Technology Education (STE) in 2023

ICASE World Conferences

ICASE World Conferences are meant to further the vision and mission of the association. The first World Conference was held in Penang, Malaysia in 2003. This was followed by other conferences in Perth, Australia (2007); Tartu, Estonia (2010); Kuching, Malaysia (2013); Antalya, Turkey (2016); and Pattaya, Thailand (2019).

ICASE World Conference International Organizing Committee (IOC)

Chair: Ben Akpan, former ICASE President (Term: 2011-2014)

Committee Members: ZHANG BaoHui, Bulent Cavas, Teresa Kennedy, Janchai Yingprayoon, Sarfraz Aslam

Invitation for Bid

An invitation to bid for the hosting of the 7th ICASE World Conference on STE in 2023 has been sent to ICASE member organizations.

Submission Guidelines

Signed and dated bids must be sent in PDF format by the deadline submission date of 31 July 2021 to Ben Akpan (Chair, ICASE World Conferences Standing Committee) via email ben.b.akpan@gmail.com

Received Bids

Two countries submitted their bids by the July 2021 deadline date.

Evaluation Process

There is a possibility of choosing one bid for the current conference (2023), and the runner up could possibly hold the next ICASE conference.

A professional evaluation process was adopted for the submitted bids. The IOC meeting was held on 7 August via ZOOM. A detailed discussion was held. The IOC decided to provide both proposers with questions prior to their scheduled online meeting held on 14 August to facilitate the preparation of responses.

On 14 August 2021 two separate Zoom meetings occurred with both bidders. Each meeting took approximately 2 hours which included a question and answer session. The IOC asked both bidders to submit a formal addendum containing their follow-up responses by 31 October, 2021. The ICASE IOC reserves the rights to decide the most suitable candidate to host the ICASE 2023 conference. More information will be provided soon.

ICASE World Conferences

UNESCO NEWS

In partnership with UNESCO

United Nations Educational, Scientific and Cultural Organization

Information compiled by Dr Teresa Kennedy
ICASE Representative to UNESCO

From the Collective Consultation of NGOs on Education 2030 (CCNGO)

Global Education Monitory Report Workshop

The Global Education Monitoring Report Team are preparing the **2023 Report on technology and education**, which will explore the often bitter divisions in how the role of technology is viewed and examine education challenges to which appropriate use of technology can offer solutions (access, equity and inclusion; quality; technology advancement; system management), while recognizing that many solutions proposed may also be detrimental. Today, you can help by taking part in the online consultation and have a say. Here's how to:

1. Read the new **concept note** for the 2023 Report, developed with the help of a **think-piece** by Mary Burns, which details how the publication will explore these debates.

2. **Join the consultation** to provide feedback on this concept note, suggest relevant evidence for the theme or new areas of research to be explored.

Join Community of Practice on Educational Management Information Systems

Interested in actively shaping the future of EMIS with UNESCO?

Then sign up to join UNESCO's Community of Practice steering committee and discussion groups: **English**, **French**, **Spanish**

For more information, join the **EMIS and Data LinkedIn Group**

International Day of the Girl 2021

To celebrate International Day of the Girl 2021, UNESCO, together with its partners, is holding the following event: **11 October (1.30pm – 3.30pm CET):** **Digital Generation. Our Generation: Learning in the era of COVID-19** will discuss what high-tech to ensure learning continuity during the COVID-19 pandemic means for girls, who due to the gender digital divide are more likely to be missing out on precious learning opportunities.
REGISTER HERE

UNESCO NEWS cont.

Global Build Challenge

UNESCO has joined Microsoft Education Edition for its '**Global Build Challenge 2021: Making Peace with Nature**' as part of its programme to engage students worldwide to address the urgent environmental crisis through education for sustainable development.

The Global Build Challenge 2021 will run from 27 September to 19 November 2021 and allow students (K-12) to learn about the Sustainable Development Goals, chat with different creatures living on our planet (set in Room 1 at UNESCO's headquarters) and explore how to shift lifestyles to start living sustainably. The challenge aims to trigger creative ideas on how to change our habits and participate in designing more sustainable, fairer, and healthier societies, in harmony with nature.

https://www.youtube.com/watch?v=UEgyromlOHI

5th UNESCO Forum on Transformative Education for Sustainable Development, Global Citizenship, Health and Well-being

Co-organized by UNESCO and APCEIU, and hosted by Ministry of Education, Republic of Korea, and Ministry of Foreign Affairs, Republic of Korea, this virtual event will be a forum for discussion and promotion of transformative education and Sustainable Development Goal Target 4.7. **Find out more**

Helpful links:

Education for sustainable development
Global citizenship education
Education for health and well-being

Just Published

Education and Covid-19: Recovering from the shock created by the pandemic and building back better (Educational Practices Series 34)

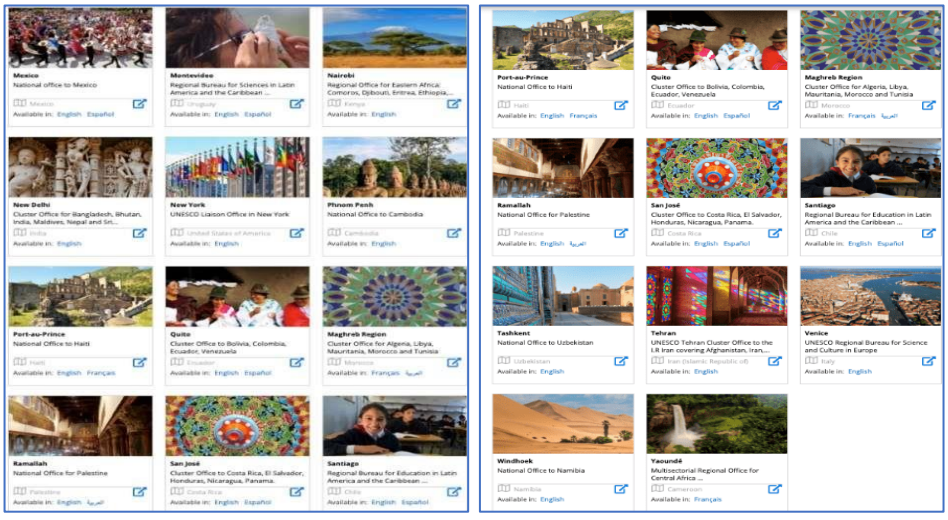
UN Our Common Agenda

UNESCO FIELD OFFICES

Through its field offices, UNESCO develops strategies, programmes and activities in consultation with national authorities and other partners. UNESCO also operates a number of specialized institutes and centres. Check the list below to see the location of the UNESCO Field Offices.

For more information see:

https://en.unesco.org/fieldoffice?field_country_reference_target_id=All



For all UNESCO Offices by Region see: http://www.unesco.org/new/bfc/all-offices/

Up Coming Events

The Association for Science Education UK (ASE) Annual Conference 2022

The Association for Science Education in the UK (ASE) will hold its next annual conference on 6 – 8 January 2022

International Day on line: Wednesday, 12 January 2022

The. Online International Day program on 12 January, which starts at 08:45hrs UK time-zone. A copy of the program is attached but the full and up-to-date details can be found on our digital timetable Sched link:

https://aseannualconference2022shu.sched.com/

Please be sure to apply the **date filter on 12 January** to view the International Day, as the entire face-to-face conference program is also included from 6-8 January 2022. The date filter is located on the right-hand side of the main screen, near the top

Tickets for the conference will go live in early September but in the meantime, there is information regarding the event on the ASE Annual Conference webpage

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Early Years STEM

If you or anyone you know has any interest in this developing area of science learning …

Please email Dr. Sue Dale Tunnicliffe, Chair of the Early Years STEM Education Standing Committee
s.tunnicliffe@ucl.ac.uk

Up Coming Events

The National Science Teaching Association (NSTA) Annual Conference 2022

The National Science Teaching Association (NSTA) will hold its next annual conference on 31 March – 3 April 2022 in Houston Texas

The National Science Teaching Association (NSTA) International Advisory Board is thrilled to present the work of innovative educators from around the world and those who involve educational initiatives that cross their homeland borders. Featuring K-16 educators – immerse yourself in discovering new perspectives on best practices, novel content delivery, new approaches to scientific literacy, and more.

To include as many presenters from as many places as possible, we are discussing changing this year's format from past conferences. We plan to have a self-directed session in which attendees can:

- Interact with educators in face-to-face poster presentations.
- Watch short video submissions from educators around the world.
- Participate in hands-on/minds-on, takeaway learning experiences.

More information about the call for abstracts and videos will be available in early 2022.

Featured Conferences & Events

Portland, OR
Area Conference On Science Education • October 28-30, 2021

National Harbor, MD
Area Conference On Science Education • November 11-13, 2021

Los Angeles, CA
Area Conference on Science Education • December 9-11, 2021

Promoting Equity/Diversity/Inclusion Through Science and STEM Teaching
Virtual Miniseries • Nov. 6 • Nov. 20 • Dec. 4 • Dec. 18

For more information about NSTA 2021 featured Conferences and Events see:
https://www.nsta.org/conferences-and-events

ICASE Journal - Science Education International (SEI)

Steven Sexton – Editor
College of Education, University of Otago, Dunedin, New Zealand

steven.sexton@otago.ac.nz

SEI is in the process of re-applying for Social Sciences Citation Index (SSCI). This process was put on hold while the Web of Science underwent a website upgrade. It is expected to be sorted and our re-application will then proceed. We were given some feedback on our first application and have addressed those issues. Depending on any new requirements by the Web of Science publishing portal, we are anticipating a favourable result.

In September, Volume 32, Issue 3 of the *SEI* journal will be published with eleven articles. The eight article of this issue is from Jean May O. Badeo and Domarth Ace G. Duque from the Science Education Department, Brother Andrew Gonzales, FSC College of Education, De La Salle University in Manila, Philippines. Their study was a revision to the 'Colorado Learning Attitudes for Science Survey' (CLASS) using 227 senior high school students.

Badeo and Duque begin their paper justifying why a revision of the CLASS was warranted. As they note the quality of a study is dependent on the quality and validity of the instrument used in the study. As such, survey instruments need to be re-evaluated to ensure psychometric soundness of the instrument when it is applied to different populations and settings. CLASS is a recognised assessment tool for gathering students' attitudes about Physics, learning Physics, and distinguish the beliefs of exper4ts from novices. Badeo and Duque applied the latest version of CLASS with its 42 statements either affirming or contradicting expert views. For their study, they focussed on 227 16–18-year-old senior high school students' attitudes to learning physics. As a result of data analysis, six items were deleted as they did not correlate significantly with other items. A further six items were deleted after exploratory factor analysis identified them as having low communality. Badeo and Duque were left with a 29-item instrument. Four factors explained almost 55% of the total variance: Personal Interests and Real World Connections, Sense Making/effort and Problem Solving, Conceptual Connections, and Applied Conceptual Understanding. Badeo and Duque concluded that their 29-item CLASS instruments is a valid instrument that measures students' attitudes in personal interest, real world connection, personal effort, and approaches.

SEI also welcomes new reviewers. If you are interested, please contact **Dr. /Prof. ZHANG BaoHui**, Chair, ICASE Research and Publications Standing Committee at icase2017bhzhang@163.com

ICASE Executive Committee 2020-2023

ICASE membership spans the world led by an Executive Committee, with a Management Committee (President, President-Elect, Immediate Past President, Secretary, and Treasurer) responsible for the day-to-day administration and working closely with Appointments Co-opted to the Management Committee, Regional Representatives, and Chairs of Standing Committees. Presidential terms are noted below.

Management Committee (2020-2023)

President (2020-2023)
Dr. ZHANG BaoHui
Qujiang Scholar Professor, Shaanxi Normal University, Xi'an, China
E-mail: icase2017bhzhang@163.com
(Member Organization: National Association for Science Education, The Chinese Society of Education - CNASE)
Also Chair of Research and Publications Committee

Immediate Past- President
Dr. Bulent Cavas
Professor, Department of Science Education , Dokuz Eylul University
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Also Chair of Web Communications Committee (Presidential Term: 2017-2020)

President-Elect
Dr. Declan Kennedy
Senior Lecturer in Science Education
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(Member Organization – Irish Science Teachers Association – ISTA
Also World Headquarters Coordinator

Treasurer
Ms. Mary Mullaghy
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Secretary
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Also ICASE Newsletter Editor
http://www.icaseonline.net/news.html

ICASE Website
http://www.icaseonline.net/index.html

Appointments Co-opted to Management Committee (2020-2023)

Editor, *Science Education International*
The Official Journal of ICASE
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(Member Organization: New Zealand Association of Science Educators - NZASE)
Also Chair of Pre-secondary & Informal Science Education Committee

Representative to UNESCO
Dr. Teresa Kennedy
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Also Past President and North America Representative (Presidential Term: 2014-2017)

Regional Representatives (2020-2023)

Africa Regional Representative
Mr. David Itamah
Director of Education, Chair of the STAN Board of Trustees; Chair of the Board of Directors of The STAN Place Ltd, the official publishers of STAN books
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(Member Organization: Science Teachers
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Europe Regional Representative
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Asia Regional Representative
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Latin America Regional Representative
Dr. Cesar Mora, Professor Titular Posgrado de Física Educativa, Centro de Investigación en Ciencia Aplicada Tecnología Avanzada Unidad Legaria del Instituto Politécnico Nacional (CICATA-IPN)
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Also Past President and Representative to UNESCO (Presidential Term: 2014-2017)

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Also Past President (Presidential Term: 2008-2011)

Chairs of Standing Committees

Research and Publications
Dr. ZHANG BaoHui
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(Member Organization: National Association for Science Education, The Chinese Society of Education - CNASE)
Also President (Presidential Term: 2020-2023)

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Also Past President (Presidential Term: 2017- 2020)

World Headquarters Coordinator
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