

WORLD EDUCATIONAL RESEARCH ASSOCIATION

International Research Network “Computational Thinking Education in Primary and Secondary Schools”

Annual Progress Report for IRN Year 2 (Reporting Period: 17 April 2020 - 30 April 2021)

A. List of IRN Participants

1. KONG, Siu Cheung [Convener]	(The Education University of Hong Kong, Hong Kong)
2. LOOI, Chee Kit [Co-Convener]	(Nanyang Technological University, Singapore)
3. BISWAS, Gautam	(Vanderbilt University, USA)
4. CHAN, Tak-Wai	(National Central University, Taiwan)
5. HOPPE, Ulrich	(University Duisburg-Essen, Germany)
6. HUANG, Ronghuai	(Beijing Normal University, China)
7. JONG, Morris Siu-Yung	(The Chinese University of Hong Kong, Hong Kong)
8. MILRAD, Marcelo	(Linnaeus University, Sweden)
9. NUSSBAUM, Miguel	(The Catholic University of Chile, Chile)
10. OGATA, Hiroaki	(Kyoto University, Japan)
11. SHIH, Ju-Ling	(National Central University, Taiwan)
12. SO, Wing Mui Winnie Kong)	(The Education University of Hong Kong, Hong Kong)
13. SPECHT, Marcus	(Technical University of Delft, The Netherlands)
14. SULLIVAN, Florence	(University of Massachusetts Amherst, USA)

B. Accomplishment of IRN in Year 2 (17 April 2020 - 30 April 2021)

The IRN in Year 2 organized one academic conference, one forum, one workshop and one symposium; as well as continued the preparation for publishing two books for achieving the IRN-specific research initiatives on investigating and advocating the practice, research and policy conducive to the effective computational thinking education in primary and secondary schools.

<i>Past Events</i>	<i>Outcomes</i>
<u>1st IRN-specific conference</u> [CTE 2020 (fully online conference)] August 19-21, 2020 // The Education University of Hong Kong, Hong Kong	- Organized the 1st IRN-specific conference
<u>1st IRN-specific forum</u> [in CTE 2020 (fully online conference)] August 20, 2020 // The Education University of Hong Kong, Hong Kong	- Organized the 1st IRN-specific forum for disseminate purposes
<u>1st IRN-specific workshop</u> [in CTE 2020 (fully online conference)] August 21, 2020 // The Education University of Hong Kong, Hong Kong	- Organized the 1st IRN-specific workshop for disseminate purposes
<u>1st IRN-specific symposium</u> [in ICCE 2020 (fully online conference)] November 24, 2020 // Asia-Pacific Society for Computers in Education (APSCE)	- Organized the 1st IRN-specific symposium for disseminate purposes
<u>Preparation: 1st IRN-specific academic book</u> Planned to be published in Spring 2021 // Cambridge, MA: The MIT Press	- Continued the preparation for publishing the 1st IRN-specific academic book
<u>Preparation: 2nd IRN-specific academic book</u> Planned to be published by December 2021 // The MIT Press	- Completed contract-signing for publishing the 2nd IRN-specific academic book

IRN Past Event 1: The first IRN-specific conference – International Conference on Computational Thinking Education (CTE) – organized by the Education University of Hong Kong, Hong Kong – was held online in August 2020. Members in the IRN serve as the conference chair, international advisory committee members and international program committee chairs of CTE 2020. This conference helped the IRN linking with the CTE community, and also spreading research ideas and scale up scholarly endeavors of the IRN.

IRN Past Event 2: The forum at CTE (International Conference on Computational Thinking Education) 2020 on August 20, 2020 was entitled “International Forum on Implementation of Computational Thinking Education in K-12”. The IRN Convener and one IRN Participant served as the panelists to deliver panel presentations for disseminating the overall vision of the IRN on implementing computational thinking education. This forum was well-received by the conference participants.

IRN Past Event 3: The workshop at CTE (International Conference on Computational Thinking Education) 2020 on August 21, 2020 was entitled “Workshop on Learning Analytics for Supporting and Developing Computational Thinking Education”. The IRN Convener and two IRN Participants illustrated suggestions to bring learning analytics to schools to support and develop computational thinking education. This workshop was well-received by the conference participants.

IRN Past Event 4: The symposium at ICCE (International Conference on Computers in Education) 2020 on November 24, 2020 was entitled “STEM for Problem Solving and Creativity Development”. The IRN Convener, the IRN Co-Convener, and two IRN Participants served as the panelists to deliver panel presentations for sharing ideas, experiences, and outcomes of STEM education for fostering students’ problem solving and creativity development. This symposium was well-received by the conference participants.

IRN Past Event 5: The IRN completed the chapter-manuscripts submission for publishing the 1st IRN-specific academic book “Computational Thinking Education in K-12: Artificial Intelligence Literacy and Physical Computing”, which is planned to be published by MIT Press in Spring 2021. The IRN continued working with the publisher for the book production.

IRN Past Event 6: The IRN completed contract-signing with The MIT Press for publishing the 2nd IRN-specific academic book “Computational Thinking Curricula in K-12: International Implementations”, which is planned to be published by December 2021. The IRN Convener and three IRN Participants will contribute book chapters to this book.

C. Immediate Plans of IRN for Year 3 (1 May 2021 – 30 April 2022)

For Year 3, the IRN plans to organize one international academic conference, one symposium and one workshop; as well as prepare for publishing two books for the further progress of the IRN-specific research initiatives.

<i>Coming Events</i>	<i>Expected Outcomes</i>
<u>2nd IRN-specific conference</u> [CTE-STEM 2021] June 2-4, 2021 // National Institute of Education, Singapore	- Organization of the 2nd IRN-specific conference CTE-STEM 2021
<u>2nd IRN-specific symposium</u> [in WERA Focal Meeting 2021 (fully online conference)] July 7-9, 2021 // World Education Research Association (WERA); Sociedad Espanola de Pedagogía; Universidad de Santiago de Compostela; and Red Transdisciplinar de Investigación Educativa	- Organization of the 2nd IRN-specific symposium for disseminate purposes
<u>Preparation: 2nd IRN-specific workshop</u> [in ICCE 2021] November 22-26, 2021 // Asia-Pacific Society for Computers in Education (APSCE)	- Preparation of a proposal for organizing the 2nd IRN-specific workshop
<u>Publication: 1st IRN-specific academic book</u> Planned to be published in Spring 2021 // Cambridge, MA: The MIT Press	- Publication of the 1st IRN-specific academic book
<u>Publication: 2nd IRN-specific academic book</u> Planned to be published by December 2021 // The MIT Press	- Publication of the 2nd IRN-specific academic book

IRN Coming Event 1: The second IRN-specific conference – International Conference on Computational Thinking Education (CTE) – will be held at National Institute of Education, Singapore, on June 2-4, 2021. Members in the IRN served as the conference chair, international advisory committee members, international

program committee chairs, and keynote speakers of CTE 2021. This conference is expected to help the IRN linking with the CTE community, and also spreading research ideas and scale up scholarly endeavors of the IRN.

IRN Coming Event 2: The second IRN-specific symposium – “Learning Analytics for Supporting Computational Thinking Development” – will be organized at WERA Focal Meeting 2021 on July 7-9, 2021. The IRN Convener and two IRN Participants will discuss the approaches and resources for bringing learning analytics to schools to support and develop computational thinking education.

IRN Coming Event 3: The second IRN-specific workshop is planned to be organized at ICCE (International Conference on Computers in Education) 2021 on November 22-26, 2021. The IRN Convener and the IRN Participants will share the experiences, practices and challenges of computational thinking education from an international perspective.

IRN Coming Event 4: The IRN will continue preparing the publication of the 1st IRN-specific academic book “Computational Thinking Education in K-12: Artificial Intelligence Literacy and Physical Computing”, which is planned to be published by MIT Press by Spring 2021.

IRN Coming Event 5: The IRN will continue preparing the publication of the 2nd IRN-specific academic book “Computational Thinking Curricula in K-12: International Implementations”, which is planned to be published by MIT Press by December 2021.