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NETWORKS OF RESEARCH COLLABORATION WITHIN WORLD EDUCATION RESEARCH ASSOCIATION

The paper focuses on the issue of advancing education research through research networking, and it directs our attention to one of the World Education Research Association program, which is called World Education Research Association-International Research Networks, WERA-IRNs. The program promotes and supports the development of high quality research, particularly with regard to creating the conditions for high-quality research through research networking in education. Reflecting on the aims of WERA-IRNs and its more than 10-year history (2010-2021), and what is already part of the WERA practice in sustaining and developing the WERA-IRNs program, it is visible that WERA-IRNs can serve as an important model for advancing education research through international research collaboration. For the purposes of the paper a historical analysis of source materials is used. The paper concludes with thoughts on future research on networks of research collaboration and science policy challenges in the era of collaborative turn in science. Research on scientific collaboration networks should be connected with the smart approach towards scientific collaboration policy and its challenges. It is necessary to take into account the horizontal nature of scientific collaboration policies, and the variety of levels at which science policies can be designed and implemented.

Key words: geography of science, research network, scientific collaborative turn in science, scientific associations, research capacity building, World Education Research Association (WERA), World Education Research Association International Research Networks (WERA-IRNs).

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Дүниежүзілік білім беруді зерттеу қауымдастығы аясында зерттеулер саласындағы ынтымақтастық желілері

Бұл мақалада зерттеу желісі арқылы білім беру саласындағы зерттеулерді ілгерілету мәселесіне назар аударылады және ол біздің назарымызды Дүниежүзілік білім беруді зерттеу қауымдастығы – халықаралық зерттеу желілері, WERA-IRN деп аталатын дүниежүзілік білім беру зерттеулері қауымдастығы бағдарламасының біріне аударады. Бағдарлама жоғары сапалы зерттеулерді дамытуға, соның ішінде білім беру саласындағы зерттеу желісі арқылы жоғары сапалы зерттеулерге жағдай жасауға ықпал етеді. WERA-IRN мақсаты, оның 10 жылдан астам тарихы (2010-2021) және WERA-IRN бағдарламасын қолдау мен дамытудағы WERA тәжірибесінің бөлігі болып табылатын іс-шараларын ескеретін болсақ, WERA-IRN халықаралық ғылыми ынтымақтастық арқылы білім беру саласындағы зерттеулерді ілгерілетудің маңызды үлгісі ретінде қызмет ететіндігі айқын көрінеді. Мақалада бастапқы дереккөздерге тарихи талдау жасалды. Мақала ғылымда бірлескен іскерлікке көшу дәуіріндегі ғылыми ынтымақтастық желілері мен ғылым саясатының мәселелері бойынша болашақ зерттеулер туралы ой-пікірлермен аяқталады. Ғылыми ынтымақтастық желілері бойынша зерттеулер ғылыми ынтымақтастық саясатына және оның мақсаттарына дұрыс көзқараспен байланысты болуы керек. Ғылыми ынтымақтастық саясатының көлденең сипатын және ғылым саясатын әзірлеуге және іске асыруға болатын деңгейлердің әртүрлілігін ескеру қажет.

Түйін сөздер: ғылым географиясы, зерттеу желісі, ғылымдағы ғылыми ынтымақтастық, ғылыми бірлестіктер, зерттеу әлеуетін арттыру, Дүниежүзілік білім беруді зерттеу қауымдастығы (WERA), Дүниежүзілік білім беруді зерттеу қауымдастығы халықаралық зерттеу желілері (WERA-IRN).

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Исследовательские сети сотрудничества в рамках Всемирной ассоциации исследований в области образования

В статье основное внимание уделяется проблеме продвижения исследований в области образования с помощью исследовательских сетей, в частности, статья обращает наше внимание на одну из программ Всемирной ассоциации исследований в области образования – Международные исследовательские сети, WERA-IRN. Программа продвигает и поддерживает развитие высококачественных исследований, особенно в том, что касается создания условий для высококачественных исследований посредством исследовательских сетей в образовании. Принимая во внимание цели WERA-IRN и ее более чем 10-летнюю историю (2010-2021 гг.), а также составных частей практики WERA по поддержке и развитию программы WERA-IRN, становится очевидным, что WERA-IRN может служить как важная модель для продвижения исследований в области образования через международное исследовательское сотрудничество. В статье использован исторический анализ первоисточников. Документ завершается размышлениями о будущих исследованиях сетей исследовательского сотрудничества и проблемах научной политики в эпоху перехода к совместной деятельности в науке. Исследования сетей научного сотрудничества должны быть связаны с разумным подходом к политике научного сотрудничества и ее задачам. Необходимо учитывать горизонтальный характер политики научного сотрудничества и разнообразие уровней, на которых может быть разработана и реализована научная политика.

Ключевые слова: география науки, исследовательская сеть, научное сотрудничество в науке, научные ассоциации, наращивание исследовательского потенциала, Всемирная ассоциация исследований в области образования (WERA), Международные исследовательские сети Всемирной ассоциации исследований в области образования (WERA-IRN).

Introduction

A fundamental shift is observable in the science as networks of research collaboration are expanding in every region of the globe (Adams, 2012). New collaboration patterns in the science have influence on changing the global balance of science and research activity. Regional networks are reinforcing the competence and research capacity in different sciences. The research networks present their dynamism in revealing different ways of approaching challenges, and needed solutions for solving research problems. Analysis of the specifity of research networks, especially global of regional networks, reveals their relation to the development of modern science, presents the global variations of scientific activities, and reveals the different science places (Olechnicka, Ploszaj, Celińska-Janowicz, 2018) – the spaces that reflect the relations between terms, notions, ideas, theories, paradigms, scientific disciplines, and fields.

This paper considers the role of World Education Research Association, WERA in promoting and supporting the development of high quality research for advancing education research worldwide through WERA International Research Networks program, WERA-IRNs. Paper presents the purposes and the history of WERA-IRNs initiative and its development. It examines the nature of WERA-IRNs networks and the principles of knowledge generation upon which they are based. The presented findings are mainly based on the historical sources and direct our attention to the issue of the role of scientific association in global research capacity building through research networks, whose work is based on the scientific collaboration. Concluding remarks on future research on networks of research collaboration and science policy challenges in the era of collaborative turn in science are presented.

Networks and the era of collaborative turn in science

Networks can be described, as it was shown by James Mitchell Clyde in his classical publication entitled: "The Concept and Use of Social Networks", as a "specific set of linkages between a defined set of social actors" (1969, p. 2), whereby both the linkages and the social actors can refer to different social entities. While the linkages or relationships may refer for example to interactions or relations defined by a specific contents such as power relations, information exchange, or emotional proximity, the actors can be organizations (among them research associations), political actors, families, or individuals. Due to its relational perspective, the concept of network proposed by Clyde integrates both the societal micro- and macro-level and offers

a specific starting point for tracing the mechanism of social integration as well as the conditions and implications of social change. The concept of network refers to the formal structure of those social relations, for example to the size of a network, the frequency of interactions between its members, or its density. Therefore, the concept of network, as Peter Marsden argues (1990, 2011), is often combined with concepts aimed at the functions or the content of relationship (social support or social capital).

For the purpose of the presented considerations I used the concept of networks with the reference to the scientific networks, which has a huge impact on the many changes to science that have occurred within the knowledge-creating system since the 1980s.

In recent years such networks have emerged as a result of thousands of individual scientists seeking to collaborate with colleagues around the world, creating a network which rises above national systems (Wagner, 2018). The growing numbers of network of science is part of the underlying shift in knowledge creation generally: the collaborative era in science (Wagner, 2018). This shift shows that science is a team effort, often straddling disciplines and regions.

Caroline S. Wagner (2018) argues that the global network of science should be seen as a new form of organization of science on top of national or institutional forms, and it has ushered in a new era of collaboration that is changing the playbook for science policy. She views science as networks and relies on complexity theory and empirical data to describe the rise of the collaborative era and its internal dynamics, and she focuses on policy implications for a host of timely issues, ranging from the economic rise of China and global governance, to patent law, copyright, and open access.

Over the past decade, the observable growth in scientific collaboration across the borders, openness, customer- or problem-focused research and development, altruism, and reciprocity are notable features of science and its challenges. In the collaborative turn era science is increasingly defined by multidimensional collaborative networks (Olechnicka, Ploszaj, Celińska-Janowicz, 2018; Wagner, 2018), where the concept of science relates to communities of scholars (Adams, 2012). The discourse on science and research networking is dominated by sites where natural, medical, social, human and technical sciences are cultivated. The relationship between science and places can be seen from two angles. The first perspective investigates the influence of particular spatial settings on the development of science. The second approach looks at scientific research as a factor of socio-economic change in specific places: towns, cities, regions, and countries.

World Education Research Association, WERA

World Education Research Association, WERA, established in 2009, is an organization of national, regional, and international specialty research associations committed to advancing education research as a scientific and scholarly field.

WERA aims to build capacity and interest in education research, foster sound education research policies and practices, and promote the use and application of education research worldwide. WERA undertakes programs and initiatives that are global in nature and that transcend what any one association can accomplish in a single country, region, or area of specialization.

WERA as a professional scientific association plays an important role in the formal infrastructure of education research. It like the other scientific associations provides an organizational framework for scholarly interaction, communication and dissemination. It embraces this purpose through convening meetings, conferences, organizing professional development courses, and workshops at its meetings, publishing books and papers in the journals, supporting early career scholars and taking on other programmatic functions that advance its field and the professionals within WERA. Similarly to other scientific association, WERA contributes to research integrity among their members through the development of different activities and programs. One of the very significant example of such a program is WERA International Research Networks, WERA-IRNs.

WERA-IRNs and their purposes

One of the main purpose of WERA-IRNs Program is to advance education research worldwide on specific scholarly topics. WERA-IRNs are temporary collaborative groups of scholars working on the chosen research topics primarily through virtual communication or other channels (see http://www.weraonline.org). Each WERA-IRN constitutes research network and its work is embodied, by definition, in collaboration and networking. It is worth pointing out that research networks within the area of higher education and science are different from partnerships, though they embody the same princi-

ples of collaboration and contain many of the same components and ways of working. However, their aim is usually to work as the catalyst for the development and capacity building of science through cooperative relationships.

WERA-IRNs synthesize knowledge, examine the state of research, and stimulate collaborations or otherwise identify promising directions in research areas of worldwide significance. All IRNs advance their research areas of interest through producing substantive reports that integrate the state of the knowledge and worldwide and set forth promising research directions. They additionally may pursue other activities and initiatives that contribute to the development of new knowledge, findings, or data that chart directions for future research worldwide. All IRNs include participants (i) from different countries and parts of the world to engender worldwide collaboration, and (ii) students and junior scholars to promote capacity building. All IRNs have a commitment to wide communication and dissemination beyond any one country or region. WERA-IRNs may present their work at a WERA symposium or keynote session or may meet at a WERA "Focal Meeting" held in cooperation with a WERA member association.

WERA-IRNs – the beginnings and the development

Below, I will outline the beginnings of the WERA-IRNs program and how it has evolved over time. Using minutes from WERA Council meetings and press releases, I will show what was important to the program's funders, and how the priorities for the program were shaped, and how the program has developed over its 10 years of existence – officially, the program started in 2010. In the year 2012 the World Education Research Association (WERA) has announced the launch of first seven new International Research Networks (IRNs). The latest announcement of the five new WERA-IRNs occurred May 12, 2021.

Created in 2010, WERA's IRN initiative brings together global teams of researchers through virtual communication and other channels to collaborate in specific areas of international importance. So far, WERA has been lunched 46 WERA-IRNs.

Research Working Groups with Worldwide Perspective (2008-2009)

September 26-27, 2009, WERA held its first Council Meeting in Vienna, Austria. The programme of this first WERA Council meeting, meeting with its historic significance, was very rich. During the first day of the meeting among the discussed issues were such as: WERA Legal Establishment and Alignment with Constitution, Nomination Process for First Full-Term, WERA Website, WERA News and Communication Planning, WERA Budget and Finance Working Group Report, WERA Symposium World-Wide, Capacity Building and the Advancement of Education Research.

The beginnings of WERA-IRNs can be traced back to the idea of Research Working Groups with Worldwide Perspective that was presented and discussed at the second day of WERA Council Meeting in Vienna. A Committee on Research Working Groups, co-chaired by Yin Cheong Cheng and Felice Levine, presented a three-year plan for research working groups with worldwide perspectives. According to the presented plan, these working groups would aim to encourage and engage researchers with diverse expertise and interests to work together on research problems and topics, and they would focus on synthesizing knowledge, critically examining the state of research, and stimulating collaborations and new lines of research. A report suitable for wide distribution through the WERA website (or other means) would result. Yin Cheong Cheng and Felice Levine stressed the importance of preparing 'A Call for Proposals for Research Working Groups' and they pointed out that such a call would focus on topics of worldwide significance and be widely disseminated around the world.

The minutes from this first WERA Council Meeting indicates that the idea for establishing research working groups received an enthusiastic response from WERA Council members, and that there was a general agreement that research working groups needed to be proposed and led by scholars with appropriate expertise. The participants of the meeting stressed the importance of individuals from different countries being involved in any working group. Chris Reddy observed that there may need to be consideration of how many research groups could be established and what the priorities would be. Hidenori Fujita noted that proposals for research working groups did not need to come from or through an association. He also suggested that beyond working groups, posting other relevant research on a topic on the WERA website would be a substantial contribution, since not everyone will respond to a call for proposals for research working groups. A question about how to facilitate funding for research working group activity was also raised.

Discussion on Research Working Groups with Worldwide Perspective focused on the process for establishing these new WERA components. The consensus was that the WERA Council should provide final approval for working groups reviewed and recommended by a Research Working Group Committee. Felice Levine said she thought the process to establish the working groups could begin in the summer of 2010, and that the three proposals for substantive activities for WERA (i.e., the symposia, the capacity-enhancing workshops, and the research working groups) are all described in the Three-Year Program Plan that was approved in Singapore in November 2008.

WERA Research Working Groups and the importance of networking – 2010

During Second Council Meeting of WERA, which was held at Denver, Colorado, May 5-6, 2010, Yin Cheong Cheng, on behalf of WERA Research Working Groups Committee (Yin Cheong Cheng and Felice Levine, Co-Chairs; Hidenori Fujita, John Gardner, and Lejf Moos), briefly summarized the purpose and goals of the Research Working Groups. The working groups would be created to encourage researchers with diverse expertise and interests to work together on research problems and topics of worldwide significance. The focus of the groups would be on synthesizing knowledge, critically examining the state of research, stimulating collaborations, and identifying new lines of research. Groups would be expected to include scholars with substantial expertise as well as emerging scholars of potential. A report suitable for wide distribution through the WERA website (or other means) would result.

Yin Cheong Cheng and Felice Levine prepared background material for the breakout session, including an outline and brief summary of the purpose, goals, and procedures for establishing and selecting working groups and for submission and evaluation of proposals. The suggested template is considered facilitative, not mandatory. Committee members raised a concern about how to attract high quality and active teams of researchers to develop WERA research working groups. Essentially two approaches were considered possible: (1) outreach to well established researchers who may already have networks or be working in groups and who might wish to affiliate their ongoing projects or networks with WERA research working groups, or (2) an open call to interested researchers who can make a submission to form research working groups in their areas of world-wide significance.

Council Members agreed that the profile of these research working groups must be highly promoted through all the channels and networking options of WERA and its member associations. Its success relies ultimately on the support of the research community, and in communicating the advantages of collaboration and networking through research working groups. A three-year time frame was considered optimal for a research working group to complete its work, but flexibility would also apply in this respect. Council Members also suggested that a new name be given to this initiative.

Towards the lunch of a first set of WERA International Research Networks – 2010

WERA held its first Focal Meeting on November 23 –24 in Kuala Lumpur, Malaysia, as an integral part of the 2010 Asia-Pacific Educational Research Association (APERA) Conference.

The WERA Executive Committee and Council met immediately prior to the APERA Conference on November 21 and 22. At the one-day WERA Council meeting, representatives took steps to further advance WERA's mission and programmatic ambitions. In addition to governance agenda items, Council focused on attracting high-quality proposals for the launch of a first set of International Research Networks (IRNs) in 2011.

Members of the Council agreed that IRNs are temporary collaborative groups of scholars working on a specific research topic primarily through virtual communication. Council also devoted attention to research capacity– building activities to enhance international education research. Council reaffirmed its commitment to hold research institutes to expand the skills and interests of early career scholars in international research.

Yin Cheong Cheng with Felice Levine presented a report of the International Research Networks (IRNs) Committee. They briefly summarized the purpose and goals of the International Research Networks (IRNs). IRNs aim to encourage researchers to work together on research problems and topics of worldwide significance, with a focus on synthesizing knowledge, critically examining the state of research, stimulating collaborations, and identifying new lines of research. They would be expected to include scholars with substantial expertise as well as emerging scholars of potential. A report suitable for wide distribution through the WERA website (or other means) would result.

Felice Levine reported that several queries about IRNs and one proposal had already been submitted

to WERA. Kathy Sanford asked what advantages scholars would have in submitting proposals through WERA. Levine said that WERA would function as a convener and facilitator of quality research, by supporting a community of scholars and helping researchers and research groups do what they could not do themselves. By offering quality peer review and WERA "branding" visibility of the research would be raised.

First WERA-IRNs proposals and the issue of spreading information about IRNs – 2011

WERA held its fourth Council meeting in New Orleans on April 13, directly following the 2011 Annual Meeting of the American Educational Research Association. Representatives from 22 WERA member associations met to discuss plans for the forthcoming Focal Meeting in Taiwan and hear progress reports on ongoing programs and proposals for new initiatives.

The WERA Council focused its attention on the importance of WERA associations' engaging active scholars among their members to submit proposals for International Research Networks (IRNs). Felice Levine, Co-Chair (with Yin Cheong Cheng) of the International Research Networks (IRNs) Committee, presented a brief report on the status of IRNs. Several inquiries and two IRN proposals have been received.

Levine believes that the plan to stimulate networks of scholars as defined by this committee is sound and very promising. The challenge, however, was how to spread information about IRNs into the various communities of the member associations. Levine indicated that, in meetings she has attended, there is a great deal of excitement about IRNs. She noted that WERA will provide workspace and an internet platform for IRNs, as well as space for content on the WERA Website. She urged representatives to watch for emails on this topic and promote the IRNs through their association media outlets and to relevant committees and members.

Council continued to affirm IRNs as a highly promising approach for synthesizing the state of the research knowledge, charting future research directions, and stimulating international collaborations (see http://www.aera.net/wera/pdfs/wera -irnscallforproposals10-4-10final.pdf).

Council decided that proposals may be submitted by scholars interested in the formation of a new research group or by scholars from an existing group. Proposals should set forth the education research topic, the general outline of a plan for researchers with different expertise and backgrounds to work together in primarily virtual space (including through e-mail, electronic media, conference calls, and so forth). Proposals also need to indicate the outcomes expected from establishing an IRN. In addition to preparing a written product, an IRN could contribute to the development of a research conference, form new collaborations, or help stimulate future research. IRN proposals will typically be submitted by co-organizers with complementary expertise and from different countries or regions of the world. Proposals should set forth a process that would permit other experienced and emerging scholars, including graduate students, to join, once an IRN is selected and announced. The duration of an IRN can vary, with a maximum of 3 years.

International Research Networks Committee

On April 12, 2011 the letter entitled "WERA Committees" to WERA Council from Felice J. Levine, WERA Secretary Genera was sent. In the letter it was stressed that at its meeting on April 11, 2011, the WERA Executive Committee discussed the current operating committees and those that would be most important to WERA for the coming years. According to the WERA Constitution (Article 5), "The Executive Committee shall have the authority to establish special or temporary committees, task forces, or study commissions that advance the purposes of WERA; specify the charge and purposes of such bodies; and require their reporting back to the Executive Committee or Council." The Executive Committee retained four following committees with essentially the same purposes and charges as have guided their operations:

Symposium Planning Committee: to receive requests from member associations and plan symposia and keynote addresses at meetings/ conferences of member associations

Capacity Building Committee: to develop and plan workshops/institutes for advanced graduate students and emerging scholars on research issues of worldwide significance

International Research Networks Committee: to conduct the review of proposals submitted under the international research networks initiative and to lead and provide oversight to the program

Focal Meeting Planning Committee: to plan the WERA Focal Meeting to be held each year in

cooperation with a meeting/conference of a WERA member association

As we can notice one of the Committee was International Research Networks Committee with its main aim to conduct the review of WERA-IRNs proposals and to lead and monitor the WERA-IRNs program. The analysis of the WERA documents shows the compositions of the WERA-IRNs Committees. They were constituted by different WERA Council members and were formed in the following ways:

WERA-IRNs Committees:
2010 –2011
Yin Cheong Cheng, Chair
Felice Levine, Co-Chair
Hidenori Fujita
John Gardner
Sari Lindblom-Ylanne
Lejf Moos
2011-2013
Yin Cheong Cheng (Co-Chair)
Lejf Moos (Co-Chair)
Hidenori Fujita
Felice Levine
Sari Lindblom-Ylanne
Christine Halse
Yoshimitsu Matsuura (from February 28, 2012)
2013 -2015
Yin Cheong Cheng (Co-Chair)
Lejf Moos (Co-Chair)
Hidenori Fujita
Yoshimitsu Matsuura
Brian Hudson
Felice Levine
Sari Lindblom-Ylänne
Theo Wubbels
2015-2016
Sari Lindblom-Ylänne, Chair
George Head
Dong-Seop Jin
Theo Wubbles
Gonzalo Jover
2016 – 2018
Sari Lindblom-Ylänne, Chair (up to 2017)
Felice Levine, Chair (in 2018)
George Head
Dong-Seop Jin
Theo Wubbles
Gonzalo Jover
Joanna Madalinska-Michalak
2019-2020
George Head
Gonzalo Jover
Winnie Wing Mui So
Joanna Madalinska-Michalak, Chair
2020-2022
George Head
Gonzalo Jover
Winnie Wing Mui So
Joanna Madalinska-Michalak, Chair

WERA-IRNs – advancing educational research and serving as a model for international research collaboration (2011-2021)

Between 2011 and 2021 according to the rigorous evaluations of the applications sent to the WERA-IRNs Committee, in total 46 WERA-IRNs proposals to establish International Research Networks have been accepted. Each of WERA-IRN demonstrates a commitment to principles and ideas that underpin the work of WERA, and their commitment to the vision of WERA.

The analysis of the topics of WERA-IRNs and the specificity of their functioning shows a great diversity in the projects to be conducted but they all share a common underlying idea that educational research can support and encourage innovative engagement in areas of critical social and educational importance. The WERA-IRNs enrich the field of education research and lead to worthwhile collaborations among scholars with shared research interests all over the world. International collaboration in education research brings much-added value to the field. Each WERA-IRN proves to be valuable additions to WERA's growing body of international research networks. WERA-IRNs can serve as an important model for international research collaboration. Below is a summary of the projects that have been launched by WERA in the seven consecutive editions to date, from 2021 to 2021.

Analysis of available data shows that over the more than 10 years of the WERA-IRNs program's operation (2010-2021), in total there have been 99 project coordinators (chairs and co-chairs) of successful proposals, and they come from 32 countries worldwide. This was dominated by coordinators from such countries as: USA (17 coordinators), Germany (10 coordinators), United Kingdom (9 coordinators), South Africa (6 coordinators), and Australia (5 coordinators).

Table 1 – WERA-IRNs launched in 2012

1.	Research Network on Marketization and Privatization in Education	Kalervo N. Gulson, University of New South Wales, Australia Christopher A. Lubienski, University of Illinois, Urbana-Champaign, USA
2.	Theory and Practice of Pedagogical Design for Learning in Digital Classrooms	Siu Cheung Kong, The Hong Kong Education Institute, Hong Kong
3.	Teacher Education for the 21st Century: Developing Teachers Who Are Thoughtful, Reflective, and Inquiring	Oon Seng Tan, Jane Conoley,Woon Chia Liu, Chua Bee Leng, National Institute of Education, Singapore University of California, Santa Barbara National Institute of Education, Singapore
4.	An International Knowledge Base for Educational Effectiveness	Michael Pfeifer, University of Dortmund, Germany
5.	The Impact of Globalisation on Higher Education	Joseph Zajda, Australian Catholic University Limited, Australia
6.	Teacher Learning – Teacher Competencies – Teacher Performance	Sigrid Blömeke, Humboldt University of Berlin, Germany
7.	Global Ethics in Higher Education	Vanessa de Oliveira (Andreotti), University of British Columbia, Canada

Table 2 – WERA-IRNs launched in 2013

1.	Sociology of Education on Educational Inequality	Heather Price, Mark Berends, William Carbonaro, University of Notre Dame, USA
2.	Financial Literacy: A 21st-Century Skill – Cross-Cultural Approaches to Research	Klaus Breuer, Sunil Behari Mohanty, Johannes-Gutenberg University, Mainz, Germany
3.	Theory Into Practice of Educational Assessment and Measurement	Wen-Chung Wang, Hong Kong Institute of Education, Hong Kong
4.	International and Cross-Cultural Educational Leadership Collaboration and Teaching	Jasmine Renner, Catherine Glascock, Rosalind Gann Arnold Nyarambi, Eastm Tennessee State University, USA

Table 3 – WERA-IRNs launched in 2014

1.	Organizational Education	Susanne Maria Weber, German Educational Research Association (GERA), Philipps University of Marburg, Germany
2.	Learning to Teach: Building Global Research Capacity for Evidence-Based Decision Making	Maria Teresa Tatto, Visiting Research Scholar, Oxford University; and Michigan State University,US; Ian Menter, University of Oxford, UK; Beatrice Avalos, Universidad de Chile, Santiago, Chile
3.	Theory and Practice of Using International Large-Scale Students Assessments Datasets for National Evidence-Based Policymaking (ILSA-PM)	Eva Klemencic, Plamen Vladkov, Educational Research Institute – Centre for Applied Epistemology, Ljubljana, Slovenia, IEA Data Processing and Research Center (DPC), Hamburg, Germany; Mirazchiyski Ernesto Treviño Universidad Diego Portales (CPCE-UDP), Santiago, Chile
4.	Intersectionality, Methodologies, and Knowledge Mobilization in Research for Social Justice in Education	Joke Dewilde, University of Strathclyde, Scotland; Clea Schmidt, Hedmark University of Manitoba, Canada; Geri Smyth, University College, Norway
5.	Internationalisation of Research in Vocational Education and Training (IRN-VET)	Ludger Deitmer, Institut Technik und Bildung, Universität Bremen, Germany
6.	Didactics – Learning and Teaching	Brian Hudson, University of Sussex, UK

Table 4 – WERA-IRNs launched in 2015

1.	Communicative strategies used by effective teachers in mathematics and literacy instruction with students who are linguistically diverse	Dorothy Feola, William Paterson University, USA
2.	Reading Literacy and Associated Reading Interventions for High-Risk Children from Disadvantaged Communities	Surette van Staden, University of Pretoria, South Africa
3.	Education policies and the restructuring of the educational profession facing the challenges of globalization	Dalila Andrade Oliveira, Universidade Federal de Minas Gerais, Brazil
4.	A Critical Examination of Teachers' Professional Dispositions in the New Millennium	Huey-li Li, University of Akron, USA
5.	Indigenous educational disparities and pedagogical practise to gain equitable educational outcomes for Indigenous school age students	Michael Donovan, Newcastle University, Australia
6.	Families, Educators, and Communities as Educational Advocates: Cross National Perspectives.	Lauri Johnson, University of Nottingham, UK
7.	Overcoming Inequalities in Schools and Learning Communities: Innovative and Audacious Education for a New Century	Rocio Garcia-Carrion, University of Cambridge, UK
8.	Cognition, Emotion and Learning: Facilitating students' learning cognitively and affectively to prepare them for the rapid changing 21st century	Oon Seng Tan, Chua Bee Leng, National Institute of Education, Singapore

Table 5 – WERA-IRNs launched in 2017

1.	Life Skills and Financial Education	James Lawrie, Aflatoun International, Netherlands; Aukje te Kaat, Graduate School, Universidad del Pacífico Peru
2.	Teaching, Learning & Literacy for Health. Safety, Life Skills, Inclusion, Social & Sustainable Development	Daniel Laitsch, Centre for the Study of Educational Leadership and Policy (CSELP); Douglas McCall, International School Health Network, Canada
3.	Education and Extremism	Hazel Bryan, University of Gloucestershi, Cheltenham, UK
4.	African Diaspora International Research Network (IRN): The Compelling Case For Enhancing Global Research Exchange Across The African Diaspora	Kassie Freeman, African Diaspora Consortium (ADC), Africa; Ernest Morrell, Teachers College Columbia University, USA
5.	International Research Network in Vocational Education and Training (IRNVET)	Michael Gessler; Lazaro Moreno Herrera & Muchlas Samani, University of Bremen, Germany
6.	Extended Education	Marianne Schüpbach Freie Universität Berlin, Germany; Gil Noam, Harvard University, USA

Table 6 – WERA-IRNs launched in 2019

1.	Effective Teachers' Communicative Strategies When Instructing Linguistically Diverse Learners	Geraldine Mongillo, William Paterson University, USA; Vered Vaknin-Nusbaum, Western Galilee College and University of Haifa, Israel
2.	Computational Thinking Education in Primary and Secondary Schools	Siu Cheung Kong, The Education University of Hong Kong, Hong Kong; Chee Kit Looi, Nanyang Technological University, Signapore
3.	Human Rights Education	Hugh Starkey, UCL Institute of Education, London, United Kingdom; Audrey Osler, University of South-Eastern Norway
4.	School social segregation	Laura Perry, Murdoch University, Australia

Table continuation

5.	Social Metacognition and Big Data Network	Ming Ming Chiu (Sze Ming LAM: center manager), The Education University of Hong Kong, Hong Kong
6.	Complexities and opportunities of the historical marginalised women in higher education: an African perspective	Fumane Khanare; Desiree Pearl Larey & Ntombizandile Gcelu, University of the Free State, South Africa
7.	Connecting Social and Emotional Learning to Professional Development for Educators and Effective Teaching	Scott Solberg, Boston University Wheelock College of Education and Human Development, USA; Lea Ferrari, Department of Philosophy, Sociology, Education and Applied Psychology, University of Padova, Italy; Chong Myung Park (Project coordinator), Boston University Wheelock College of Education and Human Development, USA
8.	Organizational Education	Susanne Weber, Philipps University of Marburg, Germany
9.	Feature Analysis Approaches in International Assessments	Eva Baker & Kilchan Choi University of California, USA
10.	Building communities of care	Linda Liebenberg, Dalhousie University, Canada; Vanessa Scherman, University of South Africa, South Africa

Table 7 – WERA-IRNs launched in 2021

1.	Building Resilience of tertiary education institutions in Africa to tackle COVID-19 and future epidemics: A multidisciplinary research network	Paulette Ekejiuba, University of Benin, Benin City/Centre of Exellence in Reproductive Health Innovation, Benin City, Nigeria; Lilian Salami, University of Benin, Benin City, Edo State, Nigeria; Friday Okonofua. Federal University, Oye-Ekiti, Ekiti State, Nigeria; Kingsley Ukaoha, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana; Loretta Ntoimo Delamou, University of Gamal Abdel Nasser in Conakry, Guinea; Eric Arthur, Ottawa University, Ottawa, Canada; Sanni Yaya; Joseph Balogun; Kunle Odunsi, Chicago State University, USA; Anne Wallis, University of Louisville, USA
2.	Research-Informed Education	Jana Groß Ophoff, University College of Teacher Education Vorarlberg, Austria; Chris Brown, Durham University, School of Education, UK
3.	Promoting and Supporting Children's Agency and Participation in Early Education and Care: During the COVID Pandemic and Beyond	Gisselle Tur Porres, Swansea University, UK; Maximus Monaheng Sefotho, University of Johannesburg; South Africa; Nicola Wills-Espinosa, Universidad Casa Grande, Ecuador
4.	World School Leadership Study (WSLS): Research and Monitoring of School Leaders' Profession	Stephan Gerhard Huber IBB, PH Zug, Switzerland; Joanna Madalińska-Michalak, University of Warsaw, Poland; Helene Ärlestig, Umeå University, Sweden; Michael Johanek, The Education University of Hong Kong, Hong Kong; Paulo Volante Beach; Karanam Pushpanadham, University of Baroda, Vadodara, Gujarat, India; Haiyan Qian, Tangaza University College, Kenya; David Gurr, University of Melbourne, Australia; & Lucy A. Wakiaga, University of Pennsylvania, USA
5.	Globalization and teacher education in the BRICS countries: The positioning of research and practice, promotion of integration of university – school systems	Roza Valeeva, Kazan (Volga region) Federal University, Russia; Ian Menter, University of Oxford, UK; Martha Prata-Linhares, Federal University of Triângulo Mineiro, Brazil

WERA-IRNs program can be treated as a good example of the role of scientific association in building high quality research through identifying promising directions in research areas of worldwide significance and stimulating collaboration. Each WERA-IRN include participants (i) from different countries and parts of the world to engender worldwide collaboration, and (ii) students and junior

scholars to promote capacity building, and each WERA-IRN advances their research areas of interest through producing substantive reports that integrate the state of the knowledge and set forth promising research directions. Each WERA-IRN functions on the basis of wide communication and dissemination beyond any one country or region with the use of the different forms and tools for communication. The time of the pandemic COVID-19 has showed how much communication is important in research that is developed across the boundaries because healthy relationships are the lifeblood of research networking — and relationships are built and maintained through communication. The importance of great communication in research networking can't be understated.

Concluding remarks: research and policy

This paper considered the role of World Education Research Association, WERA as a scientific association in promoting and supporting high quality research, particularly with regard to creating the conditions for research networking in education in a global dimension with WERA's program called World Education Research Association-International Research Networks (WERA-IRNs), which was implemented in 2010. WERA-IRNs' origins and the further developments show how much the issues of collaboration and networking, emphasize in the program's aims, is relevant and direct our attention to the capacity building of science through cooperative relationships. Reflecting on the WERA-IRNs 10-year practice, one can say that there is still a need to encourage new ideas that come with vast potential for learning and building high-quality research. WERA as the scientific association undoubtably plays an important role in advancing education research as a scientific and scholarly field through research networking in education.

The activities of WERA-IRNs in the context of the era of collaborative turn in science encourage analysis of the spatial aspects of scientific collaboration within WERA-IRNs. Addressing the topic of collaboration at a number of levels: individual, organizational, urban, regional, national, and international would be important for the future research. Spatial patterns of scientific collaboration could be analysed along with their determinants and consequences (Jeong, Choi, Kim, 2012). By combining a vast array of approaches, concepts, and methodologies, the future research could offer an exploration of scientific collaboration with the use of a number of case studies (Domínguez, Hollstein, 2014).

More research is needed on the importance of the societies (and other forces in the research system) in creating conditions and proper climate for research networking. Data on research networks may be gathered for all ties (linking elements of a closed population –"complete" network data) or for the sets of ties surrounding sampled individual units ("egocentric" network data) (see Marsden, 2011). Network data can be obtained via surveys and questionnaires, archives, observation, diaries, electronic traces, and experiments.

It is also worth mentioning that the research on scientific collaboration networks should be connected with the smart approach towards scientific collaboration policy and its challenges. It is necessary to take into account the horizontal nature of scientific collaboration policies, and the variety of levels at which science policies can be designed and implemented. A sensible policy approach to scientific collaboration, with the reference to the research networks, should consider not only the benefits that we can have thankfully to the collaboration but also its associated costs.

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