ELECTRONIC JOURNAL FOR RESEARCH
IN SCIENCE & MATHEMATICS EDUCATION
VOL. 26, NO. 2, 1-6

A Conversation with Dr. Donna Berlin about the History of ICRSME

Sarah Quebec Fuentes
Texas Christian University

Mark A. Bloom
Dallas Baptist University

The International Consortium for Research in Science & Mathematics Education (ICRSME) held its first Consultation in 1986 in Port of Spain, Trinidad and Tobago. Since that first Consultation, 14 others have followed in 10 different cities across Central and South America and the Caribbean over a period of nearly 35 years. Many of these Consultations occurred before the time of the internet, email, cloud storage, social media, and video conferencing. Most of the rich history of ICRSME is in the minds, experiences, and stories of those who have attended the Consultations. We are, therefore, moving forward with an initiative to record and archive the unique history of ICRSME.

As part of this documentation process, we interviewed Dr. Donna Berlin, one of the founders and long-time organizers of ICRSME. Dr. Berlin is Professor Emeritus at The Ohio State University (OSU). Much of her work with respect to teaching, research, and service occurred at the intersection of mathematics and science education. She taught an integrated science and mathematics course at OSU and edited the *School Science and Mathematics Integrated Lessons* (SSMILes) feature in the *School Science and Mathematics* journal for several years (e.g., Berlin, 1989a, 1989b, 1990). Dr. Berlin, in collaboration with Dr. Art White also from OSU and founder and long-time organizer of ICRSME, developed two models: Berlin-White Integration of Technology Model (Berlin & White, 1987, 1995) and Berlin-White Integrated Science and Mathematics Model (Berlin & White, 1994). The models served as a foundation for their empirical research (e.g., Berlin & White, 2012). Dr. Berlin was honored with the School Science and Mathematics Association (SSMA) *Award for Excellence in Integrating Science and Mathematics* for her models and related research (OSU, n.d.) and with SSMA's *George G. Mallinson Distinguished Service Award* for her service to the organization (SSMA, 2006), including serving as President (2002-2004).

ICRSME and Collaboration

In our conversation with Dr. Berlin, collaboration was a persistent theme in the storied history of ICRSME. In fact, collaboration between science and mathematics educators served as the beginnings of ICRSME. Collaboration is also evident in the interaction and support between established and emerging science and mathematics educators. Further, the locations of the Consultations were a foundation for collaboration between science and mathematics educators across countries. Each of the following sections elaborates on these elements of collaboration through the voice of Dr. Berlin.

Science and Mathematics Education

STEM and STEAM have become a part of the lexicon in education. Before the advent of the acronyms, however, the work of Drs. Berlin and White already focused on the integration of mathematics and science. Dr. Berlin described the early days of this work:

> *I was a math educator, [Dr. White] was a science educator, and we saw the connections, and we were very amenable to them. But the mathematics education community was not at all. … The science educators were more comfortable with the notion of integration.*

Dr. Berlin further commented on how the international community perceived the integration of science and mathematics:

> *Because the international people were comfortable with [integration], more so than the people in the United States, it was a natural outgrowth to do [research] internationally.*

The initial international collaboration included individuals from countries including the United States, Costa Rica, Trinidad and Tobago, and Panamá. The need for face-to-face interaction initiated the organization of the first ICRSME Consultation:

> *We were all doing pieces of this research. … And communications were not what they are today. I mean, we were doing things over the telephone. And it really wasn't working really well. So, it was decided that we'd all get together and share what we were finding in our research.*

ICRSME and the initial Consultation were grounded in collaborative work centered in the integration of science and mathematics education.

> *[The initial Consultation] was set up as a meeting with sessions very similar to what we've been doing ever since … opportunities for us to get together and discuss our research. We built that into some of the other sessions as well. For some of the other Consultations, we would have some time set aside where people were doing similar kinds of research and they could just get together at a roundtable and just talk and share what they were doing.*

This work led to the development of further collaboration over subsequent Consultations.

Dr. Berlin discussed one of the latter outgrowths for ICRSME. Her interactions with teachers in La Manzanilla, Mexico led to work around the integration of science and mathematics via placed-based education.

> *[In Mexico], I started to connect … with the classroom teachers and they would tell us, for example, that they take the kids to the beach, because the beach was one block from their school. And then we were talking about all the different things that connect science and math that were right there at the beach, such as the tides, the erosion, the shells, the symmetry in the shells. … They were coming up with all the different ways they saw mathematics and science on the beach, in their own community. So, that's how we started to connect it to place-based education too; so, connecting science and math, literally in the community of the students.*

At this and subsequent ICRSME Consultations, Dr. Berlin presented and wrote chapters for the ICRSME books sharing place-based learning experiences for science and mathematics specific to the location of the Consultation (e.g., Berlin, 2011, 2014).

Collaboration Between Established and Emerging Science and Mathematics Educators

As previously shared, Dr. Berlin was awarded the 2006 *George G. Mallinson Distinguished Service Award* by SSMA for, among many reasons,

> Her display of excellence in the cultivation of new leaders, especially teachers and teacher educators, into leadership roles; and for her continual drive, passion, and integrity for excellence in science and mathematics teaching, learning, and leadership. (SSMA, 2006, p. 2)

In light of her longtime leadership role in ICRSME, these same qualities are ubiquitous throughout the Consultations and Virtual Conferences that the organization has held as well as the collaborative relationships it has generated between participants.

Such collegiality and supportive interactions between established and emerging science and mathematics educators exemplifies the *je ne sais quoi* of ICRSME and distinguishes it from other academic organizations. Dr. Berlin described how established faculty, new faculty, and graduate students were all treated as respected colleagues who supported each other in their academic pursuits:

> *There was nobody who was better than anyone else. The people who came were interested in collaboration, they were interested in sharing. They weren't interested in building themselves up, particularly at the expense of somebody else. I don't know how else to describe it.*

Most of us have witnessed, or experienced, harsh critical feedback given by audience members at an academic conference presentation. Many times, such criticism is weighed against graduate students or new faculty by senior colleagues who use such opportunities to show their expertise at the expense of the nascent researcher. Such interactions are not witnessed at ICRSME. Dr. Berlin described a situation that occurred in Chile:

> *[None] of the Chileans [wanted] to present. We sat down and talked with some of them, … they were afraid that their work wasn't good enough. … So, we finally said, "Try it." One [researcher] presented his work … we changed the program to make a spot for him. … He went back to his colleagues and said, "Oh, they're not going to eat us alive, don't worry about it." We then had to change the whole program a lot because they all wanted to present their work.*

ICRSME attendees quickly recognize the friendly and supportive nature of the organization and dispatch any fears of presenting.

Another way that collaboration between established and new faculty manifests is the attention given to ensuring all ICRSME presenters have an audience to provide them constructive feedback. Unlike large academic conferences with many concurrent sessions, ICRSME Consultations and Virtual Conferences keep the number of concurrent sessions low in order to prevent any presenter from facing an audience of few or none. Dr. Berlin described a particular event when the presentation by an established leader drew most of the ICRSME attendees, leaving a scant audience in another presentation session:

> *[An established ICRSME participant] went into the other room, and there were very few people there. And he was upset with it. And he took the people from the back of the room [with an audience], so it wouldn't be so obvious, and he suggested to them, probably strongly, to go into the other room because it just didn't look right.*

And the feedback provided by ICRSME participants is supportive and constructive. Dr. Berlin explained how participants focused on helping their colleagues achieve their academic goals:

> *The special part of it, to me and I and I think for many other people, was the collegial and supportive relationships. Everybody was there to help everybody else to get tenure, to get things published, to do better*

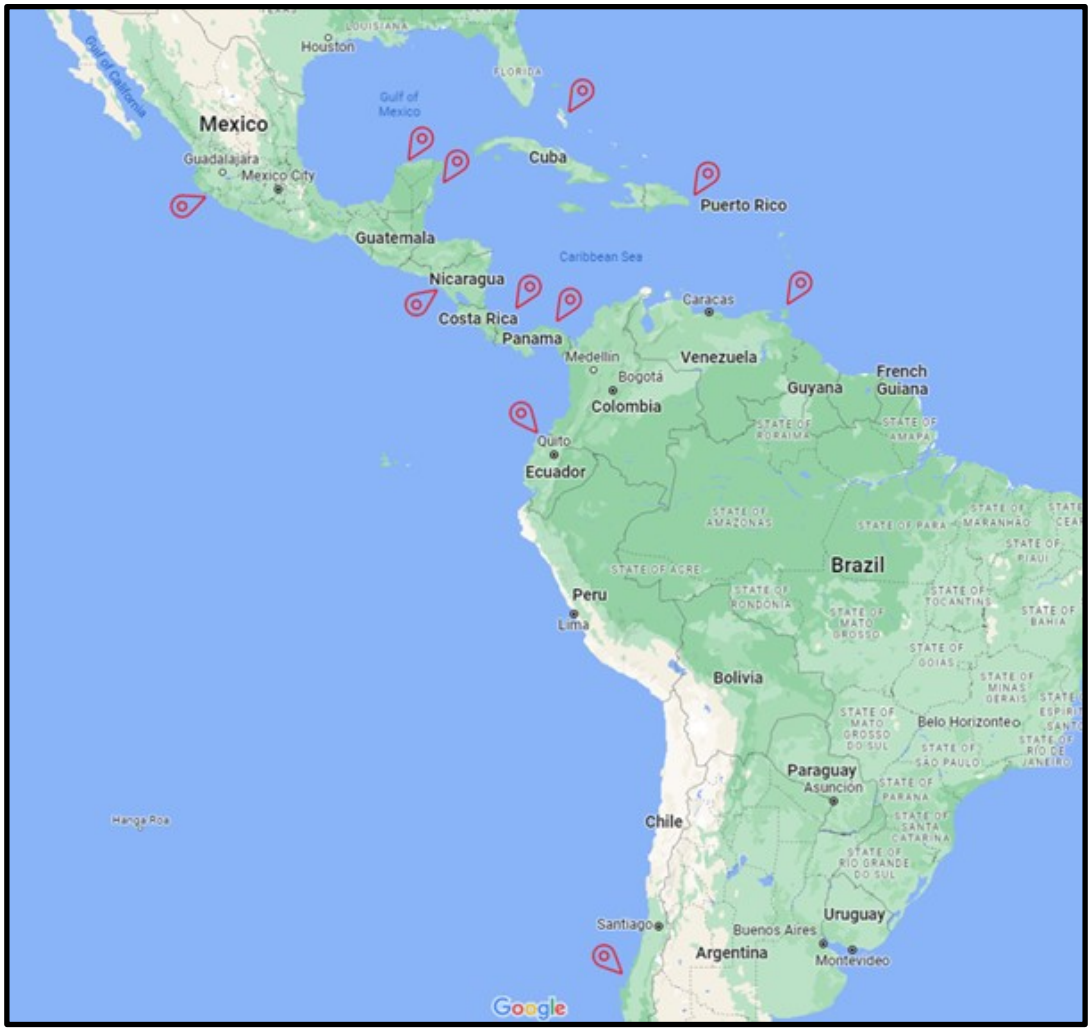
> *research, do better writing … that's the unique part of [ICRSME], everybody was really there to support one another.*

Such collaboration not only involves established and emerging science and mathematics educators but extends across a broad geographic region including Central and South America and the Caribbean, including scholars from an even greater range around the globe.

Collaboration Between Science and Mathematics Educators Across Countries

An important aspect of the collaboration that ICRSME fosters is its far-reaching geographic range. The map in Figure 1 shows the various locations of the Consultations. Further, the research shared at the Consultations comes from host country scholars and visiting academics from around the globe representing countries such as Amsterdam, Australia, Germany, Israel, Nigeria, Taiwan, Thailand, and United States.

Figure 1
Locations of ICRSME Consultations I through XV



Dr. Berlin described the benefit of the international participation in ICRSME Consultations:

> *We were collaborating on research, we wanted to share the research. With the Consultations, we were able to share it to a wider audience. We were able to get feedback from other people as well, and see what other people were doing related to what we were doing. Because it was research-based, it was all of benefit, really beneficial to all the people that were participating … college and university [faculty], … K-12 classroom teachers, … graduate students.*

When asked why the Consultations were always in Central and South American and Caribbean countries, Dr. Berlin explained that the locations were determined organically at the request of the international collaborators in the Consultations.

> *Because we started that way. We had people from the University of Costa Rica, the University of the West Indies, and the University of Panamá. … So, the people that were involved initially, and their contexts, kept it in Central America and South America. … And then it was their contacts; since we held the meetings in Central America, other people would come, and then they would want to hold it in their country. … Because of the ease of travel within the same region, that's why it stayed there.*

ICRSME collaboration does not end with sharing of research at biennial Consultations. Throughout the history of ICRSME, some exciting international collaborations have formed between visiting scholars and host country educators and schools. Some examples of such collaborative endeavors will be shared in a future editorial.

Conclusion

When asked about how she would articulate the mission of ICRSME, Dr. Berlin succinctly described her perspective:

> *If I had to pick two words, it would be collaboration and sharing. That's what was the initial mission and goals.*

Over the 35 years of Consultations, ICRSME has continued this culture of collaboration and sharing. We encourage ICRSME friends to contribute their experiences of collaboration and sharing via this survey for the documentation of ICRSME's history. We are also looking towards the future as the ICRSME community grows to include new host cities, to welcome new ICRSME friends, and to continue collaboration around science and mathematics education.

References

Berlin, D. F. (1989a). The integration of science and mathematics education: Exploring the literature [SMMILES Department]. *School Science and Mathematics, 89*(1), 73-76.

Berlin, D. F. (1989b). Introducing the SMMILES department. *School Science and Mathematics, 89*(2), 166.

Berlin, D. F. (1990). A graphing activity: Bottles, grades 8-11 [SMMILES Department]. *School Science and Mathematics, 90*(8), 732-736.

Berlin, D. F. (2011). Teaching science and mathematics through community and culture. In D. F. Berlin & A. L. White (Eds.), *Science and mathematics education: International innovations, research, and practices* (pp. 173-185). Columbus, OH: International Consortium for Research in Science and Mathematics Education.

Berlin, D. F. (2014). Place-based education: Connecting mathematics, science, community, and culture. In D. F. Berlin & A. L. White (Eds.), *Initiatives in mathematics and science education with global implications* (pp. 107-117). Columbus, OH: International Consortium for Research in Science and Mathematics Education.

Berlin, D. F., & White, A. L. (1987). An instructional model for integrating the calculator. *The Arithmetics Teacher, 34*(6), 52-54.

Berlin, D. F., & White, A. L. (1994). The Berlin-White integrated science and mathematics model. *School Science and Mathematics, 94*(1), 2-4.

Berlin, D. F., & White, A. L. (1995). Using technology in assessing integrated science and mathematics learning. *Journal of Science Education and Technology, 4*(1), 47-56.

Berlin, D. F., & White, A. L. (2012). A longitudinal look at attitudes and perceptions related to the integration of mathematics, science, and technology education. *School Science and Mathematics, 112*(1), 20-30.

The Ohio State University (OSU). (n.d.). Donna Berlin: Biography. https://ehe.osu.edu/directory?id=berlin.1

School Science and Mathematics Association (SSMA). (2006, Fall). 2006 SSMA awards breakfast. *The Math-Science Connector*. https://www.ssma.org/assets/docs/Fall2006-R.pdf