
A Statewide MTE-Partnership Collaboration (or Hui) in Hawai'i

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Introduction

In Ōlelo Hawai'i (the Hawaiian language), “hui” is used to name an organization, association, or partnership. The phrase “a hui hou” is commonly used to express “until we meet again” though it might be better understood as “until we join together again.”

The state of Hawai'i has a single public university system (University of Hawai'i) composed of 10 campuses across the Hawaiian Islands—three universities and seven community colleges—several of which offer four-year degree programs. At the K–12 level, all public schools are part of a single school district. Beyond these two statewide systems of public education, there are several private universities and K–12 schools.

Since the University of Hawai'i (UH) joined MTE-Partnership in 2015 (as “MTE-P Hui”), participation had focused around the efforts of three faculty at the Mānoa campus on O'ahu and one at the Hilo campus on Hawai'i. We have been active in three MTE-Partnership Research Action Clusters (RACs) and one working group (Actively Learning Mathematics, PR², STRIDES, and the Equity and Social Justice Working Group), each of us traveling to a previous MTE-Partnership Conference or RAC meeting as well as participating in online-based activities throughout the year.

Challenge and Purpose

While each of us was passionate about the work and the partnership, we realized our reach and impact were limited. We also expressed concern that, as is, pursuing the MTE-Partnership goals relied completely on the voluntary participation of just four UH faculty, faculty with full workloads and commitments.

In Hawai'i, our geographic isolation has fostered a reliance on 'ohana—extended family. As educators, this translates to looking to our 'ohana to ensure we are providing our keiki, our children, with a strong education. As our active members of MTE-P Hui at the University of Hawai'i considered how we might address our Hawai'i needs in terms of the recruitment, preparation and retention of high quality mathematics educators, we saw the value in reaching out to our 'ohana of educators across the state.

Our Plan for Transformation

During the summer before the 2017–2018 academic year, the authors, MTE-P Hui participating faculty at the Mānoa campus, conceived of a four-session conference series to span nearly seven months as a means to involve more of our mathematics education 'ohana in the work of MTE-Partnership.

Consistent with the MTE-Partnership Guiding Principles (2014), we set out to grow our MTE-P Hui and asked the following guiding questions:

1. How can we broaden and strengthen our collaboration with stakeholders across institutions in Hawai'i? (Guiding Principle #2: Enhancing communication among partners)
2. Who are we as an MTE-P Hui in Hawai'i and what do the national driver diagrams mean to us locally?

3. How do we establish a framework for the use of local, relevant data to inform our goals and actions? (Guiding Principle #3: Establish a framework for local research)
4. What can we learn from the experience of scaling up our MTE-P Hui? (Guiding Principle #1: Contribute to the national conversation about effective practices; and Guiding Principle #4: Sharing resources)

In this paper, we will describe how we moved from a small group of UH faculty involved individually with MTE-Partnership to a stronger MTE-P Hui including stakeholders from across Hawai'i. We will share our considerations and logistics in establishing the 2017–2018 MTE-P Hui Conference series, how our guiding questions contributed to the plan and design of each conference session, and what we learned from our transformation and discuss our next steps as a Hawai'i MTE-P Hui.

MTE-P Hui Conference Series

Our motivation for the conference series was based in recognition that the UH system alone was not sufficient to address the goals of increasing the number of high-quality mathematics teachers educating our keiki. Our reach and impact, acting alone, is limited. In addition, we recognized that we needed to expand the leadership capacity of our MTE-P Hui to establish a framework through which the work could continue as new leadership emerged and not be dependent on the participation of a small group of UH faculty. We were interested in how we could foster participation, action, and leadership from interest in the MTE-Partnership work expressed by members of our mathematics education 'ohana.

Considerations. Three foci emerged in our early planning for the conference series: (1) the importance of spending time establishing a sense of identity as a MTE-P Hui, (2) focusing efforts around the existing RAC structure of MTE-Partnership, and (3) embracing Improvement Science (Bryk, Gomez, Grunow, & Lemahieu, 2015).

Each of the authors had spent time interacting and collaborating with partners across the country in the MTE-Partnership, but we had not had an opportunity to think collectively about how this work might translate (or not translate) to a Hawaiian context. Therefore, we understood it would be important to spend some time establishing our Hui's identity and purpose specific to our unique needs in Hawai'i, to welcome and value what is referred to as a Sense of Place, a Sense of Purpose in traditional modes of learning in the Hawaiian culture. We used the national MTE-Partnership RAC driver diagrams to help us think about our local context and identify the assets we might leverage toward initiating change.

Uncertain about the amount of participation we might expect in the conference series, and motivated to position ourselves to engage in actionable, measurable projects, we choose to adopt, as an organizational starting point for our Hui, the existing MTE-Partnership RAC structure. While we aspired to have sufficient participation to warrant RACs within our Hui (referred to as Hui RACs) for each of the five national RACs, we chose to focus—at a minimum—on the three RACs and one working group with which we had been individually involved: Actively Learning Mathematics, PR², STRIDES, and the Equity and Social Justice Working Group. We wanted to keep our scope feasible and within our existing knowledge and experience with MTE-Partnership.

Our third focus was on a responsible use of data to inform our plans and actions. We respected the Plan-Do-Study-Act (PDSA) model as a means to ensure our efforts were connected to our goals and needs and were measurable. We understood the need for our Hui to be able to engage in a common “language” around the use of existing data and actionable, quantifiable goals. We incorporated time within each conference meeting to learn and practice together following the principles of Improvement Science to ensure fidelity in our use of the PDSA model.

We also discussed the likelihood for our Hui to grow and evolve as inspired by our new leader members—even if that growth was in directions different from what we had anticipated.

Logistics. During the summer preceding the 2017–2018 academic year, freshly inspired by attending the MTE-Partnership Conference in New Orleans, Louisiana, Charmaine Mangram and Linda Venenciano at UH Mānoa conceived of the idea of a conference series spanning the academic year. They invited Jim McKown, also at UH Mānoa, to join in the planning and we started the process of establishing an MTE-P Hui Conference. Our proximity and the willingness to make time in our schedules to plan and lead the conference series contributed to our de facto roles as “Hui” leaders. We met in person or on Zoom (<http://zoom.us>) generally twice before each conference date—the first time to determine our goals for the session and to assign tasks (logistics and planning), the second to finalize agenda and activities for the session.

Considering our goals for the conference series, we decided to strive for four Saturday meetings about two months apart spread throughout the 2017–2018 academic year. With consideration for the likely availability of other mathematics educators from across Hawai'i, we determined to reach out to the Hawai'i P–20 Partnerships for Education (typically referred to as Hawai'i P–20) about having our first session, an informational meeting, as a conference-within-a-conference, during their annual Math Summit in November 2017. For a January conference date, we again considered the conference-within-a-conference structure and approached the Hawai'i Educational Research Association (HERA) about overlapping with their annual conference. The March and May dates were chosen around the schedules of the three of us for lack of any other compelling rationale.

From the beginning, we realized our funding opportunities would be increased by framing the Saturday meetings as a conference or conference series. We solicited and generously received financial and organizational support from the leadership of MTE-Partnership national, Hawai'i P–20, the College of Education (COE) at Mānoa, the COE Curriculum Research and Development Group (CRDG), and independent private consultant Rich Seder. Among the three of us, we split up the task of reaching out to each of these groups and individuals for support based on existing connections or relationships keeping the others updated by email as we secured support. Table 1 provides an overview of each day of the conference series.

Table 1
Conference Overview

Date/Location	Goals and Activities
Day #1: Nov. 9, 2017 Math Summit, UHWO	Disseminate and promote the work MTE-Partnership and MTE-P Hui Recruit additional MTE-P Hui participants
Day #2: Jan. 13, 2018 HERA, UHM Campus Center	Establish a collective identity as an MTE-P Hui Introduction to Improvement Science
Day #3: March 3, 2018 DOE facilities	Continue to establish a collective identity Introduction to driver diagrams and improvement science review protocols Decide on next steps for MTE-P Hui and Hui RACs
Day #4: May 5, 2018 UHM COE	Establish leaders for each RAC Commit to researchable change ideas that each member can carry out Decide on virtual meeting schedule for each RAC Provide brief summary of the work carried out through the conference Discuss MTE-Partnership Summer Conference Opportunities

What We Have Learned

The following are brief discussions of what we learned from our first year organizing the Hawai'i MTE-P Hui Conference framed within the questions that guided our planning and implementation.

1. How Can We Broaden and Strengthen Our Collaboration with Stakeholders Across Institutions in Hawai'i?

This year has been marked by creative partnering. Our Hui partnered with a number of organizations and departments both inside and outside of the UH system. We garnered both financial and informational support from the leadership of the MTE-Partnership national organization and Hawai'i P-20. Together these two organizations committed a total of \$4,000 for this year's conference activities. In addition to named financial partners, we partnered with HERA, the Hawai'i Department of Education (HIDOE), and University of Hawai'i at Mānoa's COE CRDG. HERA provided support by incorporating an improvement science workshop into their 40th annual conference specifically for our members. HERA also waived the conference registration for our members to attend the annual conference. CRDG faculty members Thanh Truc Nguyen and Rich Seder have served as improvement science coaches for our Hui this year.

In addition to monetary and informational support, our partners have provided facilities support, primarily through our creative use of a "conference within a conference" model. This conference within a conference model allowed us to save money and also allowed us to leverage the administrative work of our partners who already had the capacity to plan and run their own conferences. For example, we hosted our first conference within the Hawai'i P-20's Annual Math Summit at UH West Oahu's campus. In addition, our second conference was hosted within the 40th annual HERA conference on campus at UH Mānoa.

We assumed that one of the greatest challenges that potential participants might face is the inability to commit to several all-day Saturday conference meetings. Therefore, our leadership team envisioned a flexible participation model in which potential MTE-P Hui members could select their own level of involvement. This year, there were two levels of commitment, "Working Group Members" and "Hui Supporters." Table 2 outlines the roles and responsibilities at the two levels of commitment.

Table 2

MTE-P Hui Participation Levels

Working Groups Willing to Meet	Hui Supporters Willing to Support
Meet three times in the Spring/Summer 2018 Possibly read a few documents and/or complete tasks between conference meetings	Might be contact people at your institution Willing to try out ideas at your institution Want to be kept in the loop

Our initial approach to recruitment was a success. MTE-P Hui has now expanded our membership to include a greater variety of stakeholders. In addition to adding faculty members from our own College of Education, we now have members from UH West-Oahu, UH Hilo, Kapiolani Community College, HIDOE, and the non-profit organization, Education Incubator.

Our "Working Group" members have increased from the original four UH faculty (three at UH Mānoa and one at UH Hilo) to 10, including mathematics faculty at Kaua'i Community College (on Kaua'i), Kapiolani Community College (on O'ahu), faculty in the Mathematics Department at UH Mānoa, and additional UH Mānoa COE faculty. Our "Supporters" make up another eight to 10 and include representatives from Hawai'i P-20, HIDOE (high school mathematics teachers as well as district support staff), a former private school mathematics teacher (now with Education Incubator), faculty at UH West O'ahu, and additional UH Mānoa COE faculty. Most of the Working Group participated in all of the conference series sessions. Some supporters were also able to attend a

session or two though many just requested to be kept informed of our progress and projects as we start PDSA cycles.

Our current Hui RACs have two, three, or four contributing Working Group members each. Several of us have identified as a Working Group member of one Hui RAC and also a Supporter of one or more of the other Hui RACs.

2. Who Are We as an MTE-P Hawai'i and What Do the National Driver Diagrams Mean to Us Locally?

In planning for our MTE-P Hui conference series for 2017–2018, we believed it was important to embed a sense of local identity. We planned for time to reflect on the goals (driver diagrams) at the national MTE-Partnership level and allowed for new Hui members to voice their perspectives about how those goals connected with our local needs.

We began conference Days 2 and 3 with activities that would help our newly forming Hui identify our own local goals, needs, and interests within the larger national MTE-Partnership context. We began Day 2 by asking the group: *What are 3 words or phrases that represent your values/goals for the MTE-P Hui?* As participants responded to the prompts, a Wordle (<http://www.wordle.net/>) was produced. The Wordle (see Figure 1) allowed participants to see connections between their own individual interests and values and those of the other participants.



Figure 1. Visual Representation of Values/Goal of MTE-P Hui Participants

In the discussion that followed this activity, we identified the following themes that we might collectively explore throughout the remaining conference days: Networking, retention, the 12–college transition, training of teachers, addressing issues of equity in HIDOE teacher placement, exploring pathways to becoming a math teacher, and influencing how mathematics is viewed and how the profession of mathematics education is viewed in the public sphere.

To help us further articulate our collective vision for the Hui, on Day 3, we asked participants: *Where are some of our strengths? What are we already doing well?* Participants responded that one of our greatest strengths was our collective focus on place-based and culture-based approaches. For example, all of the participants were

actively seeking to incorporate Nā Hopena A'o (HĀ)¹ into their own work at their various institutions. Another strength we identified was our interest and ability to collaborate across stakeholders. We envisioned that we might be able to leverage current public relations inter-institutional initiatives in Hawai'i such as [Grow Your Own](#) and [Be a Hero, Be a Teacher](#) into our Hui RAC work.

After discussing our collective strengths, we shifted to thinking about our areas of need. We asked participants: *Where are the gaps?* In other words, we wanted to collectively identify our state's needs in relationship to recruiting, preparing, and retaining high-quality secondary mathematics instructors. The two most frequently occurring needs were related to limited resources (time and money). As a Hui, many felt that we would need much more time to identify change ideas, gather data, and test our ideas. The other concern was related to Hawai'i's ability to recruit and retain high-quality teachers over the years. We face the harsh reality that low teacher salaries coupled with a high cost of living in Hawai'i may be a disincentive to many potential teachers given that other math-related careers are much more lucrative. We asked ourselves, what is our role in ensuring that, in future years, Hawaiian teachers are able to live comfortably?

In Days 2 and 3, we also spent a great deal of time developing a collective understanding of improvement science and the national MTE-Partnership driver diagrams. On Day 2, Dr. Seder facilitated an introductory session on improvement science and the PDSA cycle. Between Days 2 and 3, via email, we shared with potential conference participants the national driver diagrams and asked them to bring their questions and wonderings to Day 3. On Day 3, Drs. Seder and Nguyen led a workshop on driver diagrams. During this workshop, we learned to read a generic driver diagram, and we collectively analyzed the national MTE-Partnership driver diagram and the national RAC driver diagrams that were available online.

The national driver diagrams provided our team with a starting point for conversations about possible directions for our Hui. The drivers and paths through the drivers confirmed some of our intuitive ideas about how improvements could be attained, and, at the same time, raised questions about the relevance to our local context. Along some of the depicted paths we recognized relevance and a good fit for our context, but along other paths our team questioned their own influence on the dynamics related to the drivers.

For example, the driver diagram for the STRIDES RAC includes a secondary driver on implementing a professional development continuum. The majority of our team members are from higher education institutions. Their potential for influence is somewhat hampered by existing structures the schools and districts have implemented to induct and mentor all new teachers. Through conversations with our K–12 supporting team members, our team learned that these induction structures were designed for the general audience of new teachers and not tailored to subject areas or grade spans. As we explored the potential to collaborate with the mentors who led induction and mentoring programs with new teachers across the state, we became aware of unspoken priorities that shaped the culture of these programs.

Although our team has not carried out an in-depth analysis of the national driver diagrams, we have begun focused discussions on specific change ideas. Designing driver diagrams informed by our local context is a task we are considering for the future.

3. How Do We Establish a Framework for the Use of Local, Relevant Data to Inform Our Goals and Actions?

With a focus on actionable steps, our Hui embraced the six principles of improvement science as a methodology for proposing and tracking change over time. We believed that developing a common understanding and language among the growing hui around the strategies of improvement science will allow us to move toward

¹ An HIDOE department-wide framework to develop the skills, behaviors, and dispositions that are reminiscent of Hawai'i's unique context, and to honor the qualities and values of the indigenous language and culture of Hawai'i.

establishing data-based research cycles within each Hui RAC. We recognized that a common methodology would allow us to move beyond the isolated, often uncoordinated efforts of individuals to address the need.

The improvement principles articulated by Bryk et al. (2015) have been useful in guiding the work of MTE-P Hui and has aided our efforts to define who we are as a partner of the MTE-Partnership. Specifically, to better understand our context and the conditions that produce the teacher shortage in our state, we have focused our efforts on contacting and recruiting individuals who represent different sectors of our state education system. Through our membership we have begun to understand problems that plague our education system and discuss solutions that could potentially be exported to other contexts. For example, the RACs of MTE-Partnership have helped us organize ourselves around parallel interests within our MTE-P Hui. We formed Hui RACs, smaller-scale versions of the national MTE-Partnership RACs, and are encouraging the members of the Hui to identify with at least one Hui RAC. This has helped us identify the interests and potential influence of our membership.

Another component of the improvement science work that we have found applicable to our work is the PDSA cycle. The PDSA cycle is described as a basic method of inquiry in improvement research and follows a logic of systematic experimentation in the context of everyday practice (Bryk et al., 2015). A PDSA cycle should target a small change idea for a process or outcome. The cycle is intended to be iterative and therefore results from the change may not be clear until multiple cycles have been completed. The simplicity of the PDSA cycle makes it tempting to embrace and implement. But as we have discovered through our Hui conference sessions, deciding on a change idea is not a trivial process.

Day 4 of our conference series saw each Hui RAC identify targets for an initial PDSA cycle. We had the opportunity for Gary Martin and Marilyn Strutchens of Auburn University to join us and provide support and guidance to our efforts. Our Hui RACs all got started on a PDSA cycle with an emphasis on aiming for something meaningful and achievable given our resources.

4. What Have We Learned from the Experience of Scaling Up Our MTE-P Hui?

One of our greatest takeaways from this year relates to the power of creative partnerships. Although we were able to successfully solicit funding that allowed us to pay for meals and inter-island travel (for one participant), our creative partnerships afforded us the ability to do much more. By partnering with organizations who were already planning their own conferences, we were able to take advantage of the facilities and administrative resources of larger organizations. This was especially important given that many of our potential participants would already be planning to attend the larger events. This type of partnering also led to an increased visibility of our work to other key educational stakeholders in Hawai'i.

Another key finding is that the weekend working conference format seemed appropriate for the majority of participants. With the exception of the Missile Threat false alarm (Boboltz, Herreria, & D'Angelo, 2018), we had very consistent attendance at the sessions, and all participants came on time and stayed for the whole conference. One question that we are asking ourselves is, how can we make this more sustainable? One way to do this is to decrease the funding and administrative support needed to host the conference in upcoming years. Strutchens suggested that we consider adopting a "brown bag format" in future iterations of the conference, which seems like a feasible idea and one we recommend to others as they contemplate adopting our model. Relatedly, one of our improvement science coaches wondered whether the term "conference" was appropriate. However, our early success seems to indicate that the term conference might be critical in soliciting support (funding and administrative) from those who are less familiar with MTE-Partnership and its goals. Given the continued support we have received from national MTE-Partnership and our local partners, we feel validated that this is an appropriate plan and potential model for other institutions.

Another question we asked ourselves as we planned this year was the appropriateness of devoting so much time to learning about improvement science. Given that two of the three MTE-P Hui leaders had no prior experience with improvement science, we concluded that this was, indeed, a good use of time. Having a shared understanding of improvement science and PSDA cycles, our team anticipates that this will allow us to avoid some of the pitfalls that would be related to our lack of knowledge. Also, a firm grasp of improvement science methodologies might allow individual Hui members to feel empowered to join national RACs on their own, which was one of our original goals when we began this work. We have already seen some traction in this area, as two of our current members are now considering joining the Clinical Experiences RAC this summer.

Finally, although we were able to increase participation with other faculty across the UH system, we were less successful in increasing involvement from non-faculty (such as the HIDEOE math specialist, college math advisor, STEM Diversity Specialist for the UH Office of STEM Education). While we hoped that having these various stakeholders present would add to the diversity of thought informing the development of our hui, their absence may have inadvertently allowed us to ensure that the concerns/priorities of other entities did not overshadow our original objectives. We plan to continue inviting people in these positions to serve as supporters, but we understand that, for now, the MTE-P Hui membership might consist primarily of faculty.

Next Steps

Given the positive responses, we are planning to continue this conference format in the following year. Now that all current MTE-P Hui members have a shared knowledge of the improvement science processes and the goals of Networked Improvement Communities, our leadership team has decided to move forward with our original plan to devote most of our conference time to Hui RACs. Our next steps will be to encourage Hui RACs to establish regular times and dates to meet outside of “conference” dates. One key factor in our ability to divide into Hui RACs is the identification of facilitators for each Hui RACs. We believe that this is our greatest priority at this stage, as we were less than successful at building leadership capacity/capability this year. Before the start of the Fall semester, our current leadership team will need to: (1) identify possible Hui RAC leaders and (2) create a plan for gradually releasing the responsibilities for MTE-P Hui to the individual Hui RAC leaders.

In addition to developing a leadership plan, we will need to continue to sustain and maintain the partnerships that were established this year. In particular, we must determine whether it is possible to continue to hold our conference within the Hawai'i P-20 Math Summit and also explore other ways to leverage our partnership with HERA. With all the momentum that we have generated this year, we are excited to continue this journey in growing our Hui. We also look forward to sharing this information with the larger MTE-Partnership community at the Seventh Annual MTE-Partnership Conference. A hui hou—until we join together again.

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