

**PACIFIC ETHNOMATHEMATICS:
NAVIGATING ANCIENT WISDOM AND MODERN CONNECTIONS**

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In an effort to address issues of equitable and quality mathematics education, culturally-responsive strategies are explored in diverse populations through research and praxis. Defined as the intersection of historical traditions, sociocultural roots, linguistics, and mathematics, ethnomathematics encourages the investigation and adaptation of these concepts within formal and informal environments (D’Ambrosio, 2001; Greer, Mukhopadhyay, Powell, & Nelson-Barber, 2009). Ethnomathematics is a tool to foster an ongoing process of navigating and wayfinding by: (1) respecting and celebrating cultural systems and practices in experiential, place-based education, (2) strengthening student engagement pathways through multiple approaches to learning mathematics, and (3) providing a framework for sustainable campus-community networks (Boaler, 2002; Palhares & Shirley, 2012). Promising practices include a National Science Foundation funded Mathematics Center, University of Hawai‘i Ethnomathematics and STEM Institute, and local and global partnerships. The Polynesian Voyaging Society canoe Hōkūle‘a, “star of gladness,” is a vehicle to explore ethnomathematics applications as we strive to honor ancient wisdom and modern connections. For example, Hōkūle‘a is internationally renowned for the role it has played in rekindling the Pacific Island traditions of non-instrument wayfinding, astronomy, marine science, and celestial navigation (i.e., sun, moon, stars, winds) based in mathematics principles. In the past four decades, Hōkūle‘a has sailed over 200,000 nautical miles, and inspired a revival of voyaging and indigenous practices around the world (Finney, Kilsonky, Somsen, & Stroup, 1986; Furuto, 2014). Hōkūle‘a is currently circumnavigating the globe from 2013-2017 on the Mālama Honua Worldwide Voyage, and the presenter was on the first international leg from Hawai‘i to Tahiti, and subsequent voyages to American and Western Samoa, Olohega (Swain’s Island), Aotearoa (New Zealand), South Africa, Washington, D.C., and New York City, sailing with leaders such as United Nations Secretary General Ban Ki-moon, His Holiness the 14th Dalai Lama, and Archbishop Desmond Mpilo Tutu. The mission of the Mālama Honua Worldwide Voyage of Hōkūle‘a is to care for all people and places like they are ‘ohana (family). It is a culture of caring for our students, schools, and home that we call island earth.

References

- Boaler, J. (2002). Learning from teaching: Exploring the relationship between reform curriculum and equity. *Journal for Research in Mathematics Education*, 33(4), 239-258.
- D’Ambrosio, U. (2001). *Ethnomathematics link between traditions and modernity*. Rotterdam, Netherlands: Sense Publishers.
- Finney, B., Kilonsky, B., Somseon, S., & Stroup, E. (1986). Re-learning a vanishing art. *The Journal of the Polynesian Society*, 95(1), 41-90.

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- Furuto, L. (2014). Pacific ethnomathematics: Pedagogy and practices in mathematics education. *Teaching Mathematics and its Applications: International Journal of the IMA*, Oxford University Press.
- Greer, B., Mukhopadhyay, S., Powell, A., & Nelson-Barber, S. (2009). *Culturally responsive mathematics education*. New York, NY: Routledge Press.
- Palhares, P., & Shirley, L. (2012). The role of ethnomathematics in mathematics education. In S. Cho (Ed.), *Proceedings of the 12th International Congress on Mathematical Education* (pp. 575-578). Seoul, Korea: ICME.