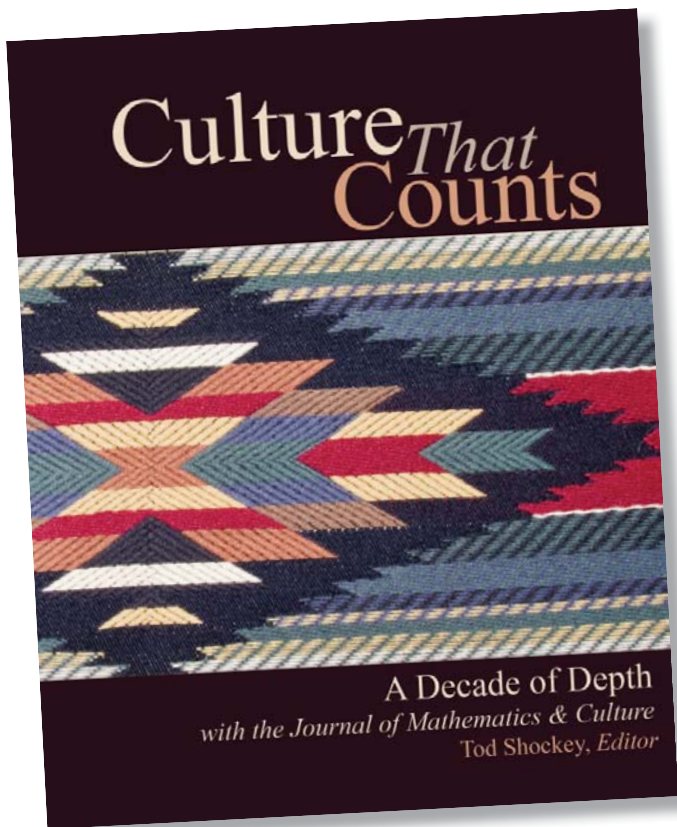


# The resource for ethnomathematics.



This compilation of articles celebrating the tenth anniversary of the Journal of Mathematics & Culture examines the intersections between mathematics and culture in western and non-western societies, and among math professionals and non-professionals. Authors from early editions of the JMC were asked to write and share their respective research insights after ten years. This collection is in response to requests for Ethnomathematics curriculum materials.

**Tod Shockey** has been a mathematics educator for over 20 years. Shockey began his career as a secondary school teacher. After graduate school he has spent the past 20 years in higher education. His research interest has primarily focused on Ethnomathematics. As members of the North American Study Group on Ethnomathematics, Shockey and Dr. Rick Silverman began the Journal of Mathematics and Culture. The Journal has matured to become a multi language (Arabic, English, Italian, Portuguese, and Spanish) open domain source.

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## **Culture That Counts**

*A Decade of Depth with the Journal of Mathematics & Culture*

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# Ten Years Later: A Look Back on the History of the Journal of Mathematics and Culture

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Volume 1

## Abstract

Ten years and sixty manuscripts later, the *Journal of Mathematics and Culture* JMC celebrates the milestone of a tenth anniversary. To that end, a coding scheme was developed around the emerging themes from publications. This paper brings together a selection of these themes as a strategy to look back at the Journal’s history. Beyond the reference section, we include a bibliography of the corpus of published papers. The bibliography is a living document, in that it will be published with abstracts with each future edition of the Journal. While the authors are acknowledged as the “founding” editors for the *Journal of Mathematics and Culture*, the JMC is the accomplishment of many. We conclude with acknowledgements of the individuals that have made this tenth anniversary issue a reality.

## Journal of Mathematics and Culture

The journal’s contents examine the intersections between mathematics and culture in both western and non-western societies, and among both math professionals (such as university mathematicians, mathematics educators, and cryptologists) and non-professionals (such as carpenters, indigenous healers, and hair stylists). We define culture broadly, to include all scales: ethnic groups, nations, labor communities, religious traditions, professions, and so on. Particular aspects of culture examined might include broad social dynamics such as race and gender, or micro-practices such as dancing or computer programming. Mathematical practices include symbolic systems, spatial designs, practical construction techniques, calculation methods, measurement in time and space, specific ways of reasoning and inferring, ordering, classifying, and other cognitive and material activities which can be translated to formal mathematical representation. Of particular interest are educational studies which take the classroom setting into account, such as pedagogical applications of ethnomathematics.

## Keywords:

- ◆ Ethnomathematics

## Introduction

We don't know if anyone planning for a journal such as this one sitting in the hotel lobby all those years ago would have believed that the JMC would celebrate 10 years, but here we are, indeed! The first decade is history. This has been a wonderful journey connecting ethnomathematics colleagues from around the globe. Today the Journal is truly international, accepting manuscripts in Arabic, English, and Portuguese.

We have been very fortunate with our editorial board, representing many countries and many educational institutions. Through the years members of the board have reviewed manuscripts from six of the world's seven continents. In the year 1977, Professor Ubiratan D'Ambrosio at the Annual Meeting of the Association for the Advancement of Science (AAAS) brought the term "Ethnomathematics" to the audience of his colleagues (Mesquita, Restivo, and D'Ambrosio, 2011). D'Ambrosio's 1985 article elaborated the meaning of this term. In the years since Professor D'Ambrosio brought this term, really, this concept, to light, we have seen shifts in attention to the scholarship identified with Ethnomathematics. The important work of mathematics (through a western view) of cultures continues to be an emphasis. We acknowledge tension exists amongst scholars about the "western view."

*Writing about the topic of cultural mathematics for readers with backgrounds primarily in Western mathematics brings one to a dilemma: On one hand, using Western terminology and notation to describe mathematics of non-Western cultures is inherently inaccurate because people in such cultures would not*

*think of the mathematical content in the same way as it is perceived in Western culture. On the other hand, if the goal is for people of Western backgrounds to understand how cultural activities can be understood as mathematics, then one must speak to readers in familiar mathematical terms. (Gilsdorf, 2012, p. xii).*

## Looking Back

A quick count reveals that JMC has published nearly 60 manuscripts in our history. Included in this count is the focus issue of the International Congress of Ethnomathematics hosted by Dr. Lawrence Shirley. JMC published the abstracts of the ICEm hosted by our late colleague Dr. Paulus Gerdes. Unknowingly, the Journal has "previewed" work that has led to the publications of books, Gilsdorf, 2012; Katsap and Silverman 2016; and Vandendriessche, 2015. A unique characteristic of our editorial board is the opportunity they have to mark the last question on the review form: "If you are not recommending "Accept," would you be willing to work with the author(s) to get this manuscript into publishable form?" Checking "yes" on this space, our editorial board members have supported and mentored many of our colleagues. This academic altruism has led to a number of publications in the JMC that may otherwise have never been published nor certainly even read. We have been pleased to support junior colleagues, graduate students, and our senior colleagues, all who have chosen the Journal as an outlet for their important work.

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## Anniversary Edition Motivations

A motivation for this anniversary issue was forward thinking, an opportunity for our authors to reconsider their papers and reflect back. We encouraged the reflection to be inclusive of pedagogical considerations. We are told that ethnomathematics is part of the Brazilian national curriculum. In the United States we are aware of ethnomathematics courses occurring in higher education. We felt it was important for a moment of reflection to consider connecting our scholarship to our classrooms.

A second motivation for this edition is for us as a community to continue to look forward. Of late, the pioneering work of Ethnomodelling (Bassenezi, 2001; Rosa & Orey, 2013) has established a firm agenda for the Ethnomathematics community. New questions arise and expanding views of the scholarship are emerging as pioneering work from Brazil and the United States becomes available to our global community.

We acknowledge and dedicate this anniversary edition to those that have allowed us to stand on their shoulders to see further: Ubiratan D'Ambrosio, Marcia Ascher, Beatriz D'Ambrosio, Sandy Dawson, Paulus Gerdes, Rex Matang, and Claudia Zaslavsky.

As the *Journal of Mathematics and Culture* continues we look forward to expanding our role to be inclusive and the representative of many global voices. In the words of our dearly departed friend and colleague Beatriz D'Ambrosio (personal communication, 2015):

*The Journal of Mathematics and Culture has become an important outlet for work in ethnomathematics, mathematics for social justice, and political dimensions of mathematics teaching and learning. While still a relatively young journal, the high quality of the articles that have appeared to date are an indication*

*that this journal will soon be ranked in the top tier in the country. The co-editors are responsible for recruiting authors of the highest quality... This initiative has made a huge impact on the field and opened a new outlet for researchers striving to participate in the knowledge production in mathematics education... This has been an enormous service to the field, while also being a significant contribution to the production of knowledge in mathematics education.*

## Emerging Themes

An emerging ethnomathematical theme through the years has been "calendar." Bishop (1991) introduced six cultural activities that have served as a theoretical framework for many scholars working in Ethnomathematics, (see Figure 1).

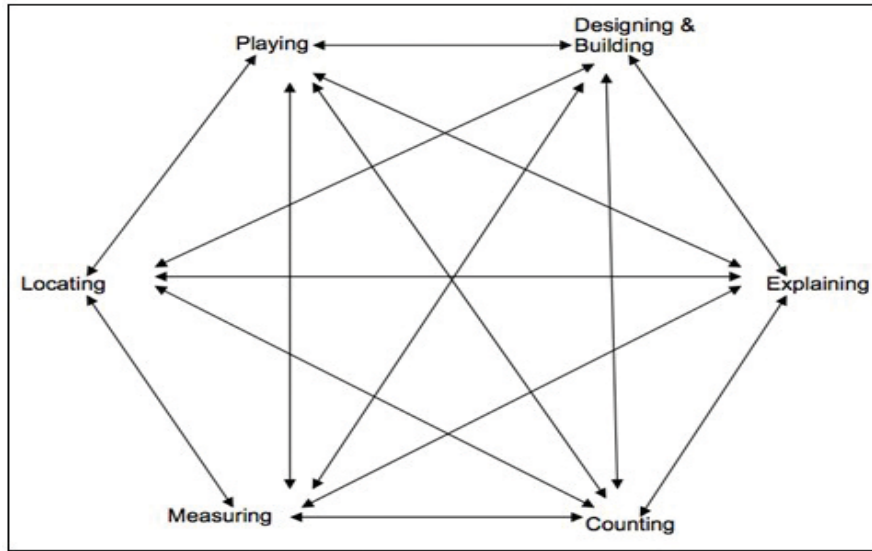


Figure 1. Bishop’s (1991) Six, Adapted by Shockey, Mitchell and Barta

These universal, every day, naturally occurring activities are interrelated, which is clear from Bishop’s (1991) work. When Shockey, Mitchell, and Barta considered Bishop’s (1991) framework, they highlighted that these activities are not mutually exclusive. In the ten years of JMC, authors have brought the concept of calendar (Bjarnadottir, 2010; Sharp, 2015) to the forefront. To that end, we are reconsidering the rendering of Figure 1 to “grow” from a hexagonal representation to a heptagonal representation inclusive of calendar, (see Figure 2). We must consider whether calendrical activities fall sufficiently within the domain of naturally occurring measuring behavior, or whether at their root they are more sophisticated than the existing behaviors within Bishop’s (1991) work.

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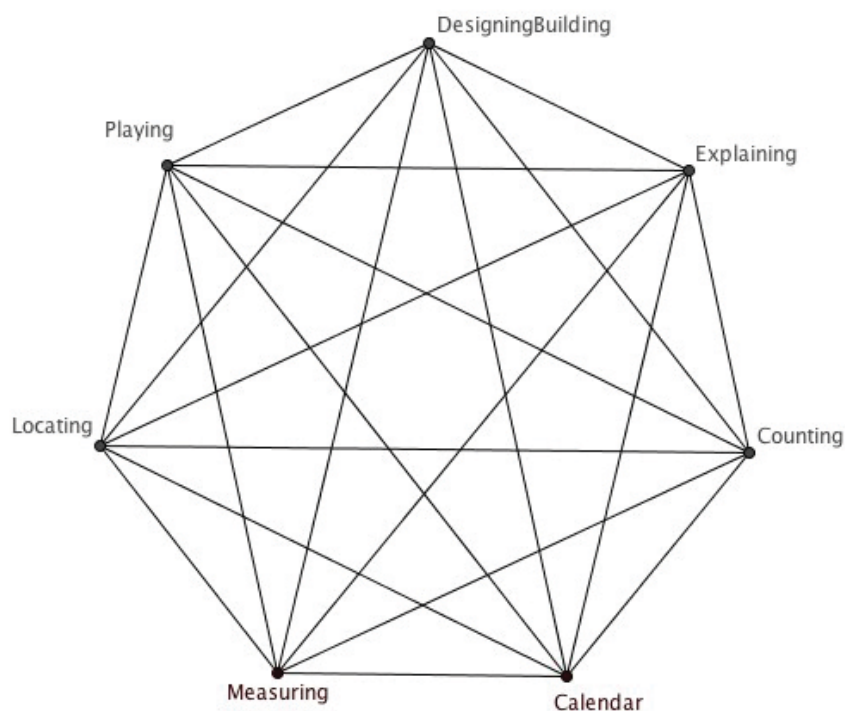


Figure 2.

We are suggesting that it may be worth considering Calendar as a stand alone activity as many activities have a time of year associated with them.

Fossa (2006) stated that: “Ethnomathematics is generally concerned with the resolution of practical problems” (p. 32). Practical problems or connections to everyday life have emerged as a theme through our history. Staats (2006) discussed her research on Ethnomathematics case studies for her students to “develop subjective, values based motivation to study mathematics” (p. 39). Palhares (2006) focused our attention on his findings from an after school program where “students worked on projects that connected mathematics to their lives” (p. 12). These connections explored through an ethnomathematical lens are found in the African drumming work of Sharp and Stevens (2007).

As many of our authors have emphasized connections, which is a point we attempt to illustrate in Figures 1 and 2 that each of the categories is connected to the others. In the teaching of a course in ethnomathematics, many of us have worked with our students to bring out this interconnectivity. Another component of connections has to do with linking research to the classroom through motivations of being culturally responsive (Bonner, (2010); Barta & Shockey (2006); Diez-Palomar, et. al (2007); Ealey & Henzel (2012); Engblom-Bradley (2006); Harding-DeKam (2007); Katsap & Silverman (2008); Massarwe, et. al (2010)).

Another theme that has become prevalent is the “voices” we “hear” as readers of work that is occurring globally. Owens (2012) brings the voices of New Guinea to our readership, we hear Native American and First Nations voices in the works of Barta and Shockey (2006), Galindo et. al (2009), Engblom-Bradley (2006), and Ealey and Henzel (2012). Chahine and Kinuthia (2013) bring a Zulu



# Culture *That* Counts



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