The 11th International Congress On Mathematical Education

Monterrey, Mexico

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The Role of Ethnomathematics in Mathematics Education

ETHNOMATH

Addressing questions:

2. How is ethnomathematics related to mathematics, anthropology, or the politics of mathematics education?
4. What are the implications of existing ethnomathematical studies for mathematics and mathematics education? and,
7. Ubi D'Ambrosio and his disciples advocate that Ethnomathematics offers opportunities for teaching and learning mathematics that promote a world agenda for increasing the prospects of peace and diminishing the prospects of war and conflict? To what extent does consensus exist for this perspective? Why?

Session Length: 90 minutes
Speaker:
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Title of Session (140 Characters):

How to Know: Using Conceptual Blending Visualizations to Explore the Domain

Description of Session (350 Characters):

In this session, I will share an approach using Conceptual Blending Theory, itself an ethnomathematical form, to show how we as teachers and researchers can present not only the elements, relationships and processes of the mathematical domains we engage and teach, but also how we can create links to other domains, and best yet, how we can be sure we have everything we need, and nothing we don't.

Detailed Description of Session (1500 Characters, 200-250 words):

Our communities influence what we conceptualize mathematics, establishing a political position that constrains how we look at and feel about its various ethnologies. The rapid increase of what it is possible to know, coupled with decreasing mathematical knowledge and skill of general populations, challenges us to find ways to break through the contributing cognitive and socio-political barriers.

I have extended mathematics education approaches of Conceptual Blending Theory to include visualization, so people can see how mathematics is a collection of culturally-contextualized mathematical "blends" that when decomposed, illuminate

concepts that are shared across the globe because of our innate human processes for creating knowledge.

The organizing principles are holistic and lend themselves easily to cultural mathematical ideas and visualizations. The structures themselves are "runnable," that is, they can be executed as computer technologies, facilitating the generation of explorable visualizations of mathematical correspondences within and across cultures. While such technology does not in itself reduce the complex and wide-spread mathematical biases we encounter, it does help us change minds with wider access to broader knowledge. Because the visualizations are intrinsic, interactive and recursive, taking the engaged student backwards and forwards in time and through levels of detail according to learning needs, this approach increases access to mathematical understandings for those whose mathematical semantics might have been insufficiently rich to support ongoing mathematical development, making us a richer, more mathematically engaged world.

Presentation Needs
        Special Requests: None
                Date/Time:
                Reason:

        Equipment:

LCD projector or direct connection from laptop to display monitor. Note: Large screen TVs are being used for this more and more these days.