EVOLUTION OF AN ETHNOMATEMATIC ANALYSIS PROCESS OF DANCE PALO DE MAYO IN COSTA RICA

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PRESENTATION: We describe a process of ethnomathematical analysis performed to a traditional Afro-Caribbean dance in Costa Rica -Palo de Mayo- by a dialogic vision of ethno-modelling. The emic vision includes the dancers perspective and a representation of a tree decorated with colored ribbons. It represents the flowers in the dry season and the rain and the good harvest was evoked during the dance. The etic vision shows the model of the weaving with colors ribbons in the tree done by an even number of dancers through circular movements. The dance and the weaving occur at the same time

PREMISE: dance is a little recognized mathematical cultural knowledge
CONJECTURES : What are the main Ethnomathematical models that are present in the Caribbean dance of Palo de Mayo?

CULTURAL SIGN: Palo Mayo is a traditional Caribbean dance that is part of the culture of the Caribbean coast such as Honduras, Nicaragua, Belize Panama and Puerto Limón in Costa Rica, the tradition dates back to the 17th century, the origin of this custom of dancing around a tree to greet the crops, the production and, at the time, celebrate the birthday of Queen Victoria (May 25).

THEORETICAL FRAMEWORK:

(D'Ambrosio, 2010)

This work is theoretically based on the Ethnomathematics Research Program, as it aims to "analyze the sociocultural roots of mathematical knowledge, revealing a great concern with political dimensions to study History and philosophy of mathematics in its pedagogical implications" (D'Ambrosio, 2010, p. 22), favoring the contextualization of the elements and symbols present in folk dances.

(Rosa y Orey, 2017)

Ethno-modeling, from the perspective of Rosa and Orey (2017), is conceived as the translation of local mathematical ideas into global mathematical knowledge.

METHODOLOGICAL SEQUENCE

- Bibliographic review
- Choreographer Interviews
- Choreographic Description
- Tissue ethnomodelization

ETHNOMATEMATIC ANALYSIS OF BRAIDING :

Each ribbon of the stick was given a color code C_i, with a range of six possible colors, in order to study the braiding that it establishes from the trajectory of the dance. The behavior of each ribbon with respect to the others was analyzed, in order to establish a pattern of relationships among all the C_i.

C_4 C_5 C_3 C_2 C_6 C_1
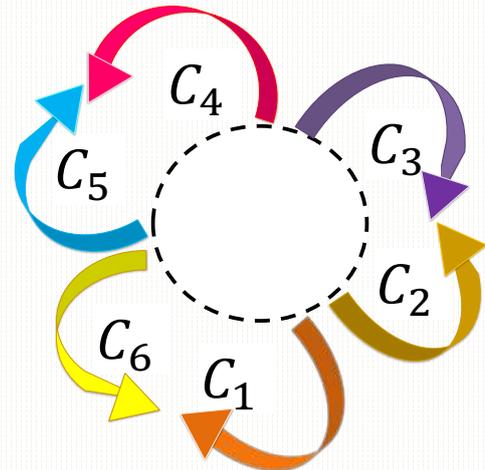
The dialogic perspective between the emic and the etic allowed observing colored ribbons around the stick and its pattern of relationships to compose the braiding from color codes C_i.

C_6 C_1 — Ribbon C_1 goes to the left and C_6 goes to the right, passing C_1 over C_6

C_2 C_3 — Ribbon C_3 goes to the left and C_2 goes to the right, passing C_3 over C_2

C_5 C_4 — Ribbon C_5 goes to the left and C_4 goes to the right, passing C_5 above C_4

In summary, we can generalize that all ribbons C_i where i is an odd value have a counterclockwise trajectory and all ribbons C_i where i is an even value have a counterclockwise trajectory. Our set of ribbons must be an even quantity with a minimum of four ribbons.

C_1 under C_4
C_3 under C_6
C_5 under C_2

C_1 above C_2
C_3 above C_4
C_5 above C_6

CONCLUSIONS: In the poster we have proposed a Socio-Cultural practice such as the dance reflected in the fabric of the Palo de Mayo, in order to show all ethnomathematical conceptions, to form a knowledge that is not rigid but in continuous evolution, because through a concrete example we will rescue some mathematics developed by a determinate cultural group.

REFERENCES:
- D'Ambrosio, U. (2010). *Etnomatemáticas: entre las tradiciones y la modernidad.* Madrid, España: Ediciones Díaz de Santos.
- Rosa, M. y Orey, D. (2017). *Etnomodelagem:* a arte de traduzir práticas matemáticas locais. São Paulo, SP: Editora Livraria da Física. .