

EVOLUTION OF ETHNOMATHEMATIC'S ANALYSIS OF DANCE "PALO DE MAYO" IN COSTA RICA

Steven Quesada, Veronica Albanese, Ma. Elena Gavarrete

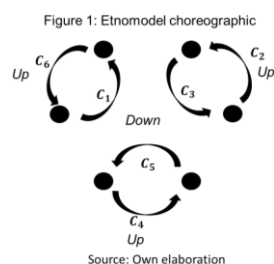
Universidade Federal de Ouro Preto, Brasil, Universidad de Granada, España, Universidad Nacional, Costa Rica

This poster describes the ethnomathematical analysis process performed to a traditional Afro-Caribbean dance in Costa Rica, "Palo de Mayo", through ethno-modeling. The dancer with their movements around a tree holding some colored ribbons create a braid. The ethno-model shows the circular movements realized by the dancers that represent at the same time the dancing choreography and the weaving.

Palo Mayo is a traditional Caribbean dance that belongs to cultural groups of the Caribbean coast, such as Honduras, Nicaragua, Belize Panama and Costa Rica. The meaning of this custom of dancing around a tree is to greet the crops and. *The braid around the tree represents the flowers in the dry season, because during the dance the rain and the good harvest are evoked.* The conjecture is that dance is a mathematical cultural knowledge poorly recognized, so we want to investigate what are the ethnomathematical models that dialogs in the Caribbean dance of "Palo de Mayo".

The work is framed in the Research Program in Ethnomathematics (D'Ambrosio, 2010), favoring the contextualization of mathematical elements and symbols present in folk dances. Particularly, the perspective of Rosa and Orey (2017) about ethno-modeling, is the basis for the translation of local mathematical ideas, recognizing the specific mathematical knowledge of a differentiated group, which, in this case, is that of Caribbean dancers.

The ethnomodel is "a mathematical knowledge developed by the members of a certain cultural group, it also consists in the evolution of abstract systems that is the internal logic of the members of a cultural group" (Rosa & Orey, 2017, p. 43). This ethnomodel involves the mathematical concept of graph (Albanese, Oliveras and Perales, 2014) where each dancer with a colored ribbon receives a color code, such C_i , with a range of an even number of codes (it can be 6,8,12 dancers). In the poster, the case of six dancers/colored ribbons is shown in details.



In addition, to study the braid that is established from the trajectory of the dance, the behavior of each dancers/ribbons with respect to the others is analyzed, so a pattern of relations among all the C_i . The structure of the weaving is regular and cyclic. We will show that half of going clockwise and the other three are going in the opposite direction, also alternating movements going up or down the dancer that is facing.

The product obtained from the trajectory of the dance is a colored braid in the Palo de Mayo and the ethnomodel constructed around this dance, allows demonstrating some local conceptions and characteristics of an ancestral knowledge that is not rigid, but is preserved and evolved through practice. The ideas presented in this poster correspond to parts of a research in development.

References

- Albanese, V., Oliveras, M. L., & Perales, F. J. (2014). Etnomatemáticas en Artesanías de Trenzado: Aplicación de un Modelo Metodológico elaborado. *Bolema - Boletim de Educação Matemática*, 28(48), 1-20.
- D'Ambrosio, U. (2010). *Etnomatemáticas: entre las tradiciones y la modernidad*. Madrid, España: Ediciones Díaz de Santos.
- Rosa, M., & Orey, D. C. (2017). *Etnomodelagem: a arte de traduzir práticas matemáticas locais*. São Paulo, SP: Editora Livraria da Física.cv