

UNIVERSIDAD DE GRANADA

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STUDY OF THE MENTAL MODEL OF VOLCANO IN PRIMARY SCHOOL STUDENTS, THROUGH THE ANALYSIS OF DRAWINGS

Introduction

The objective of this work is to know the students' previous ideas about volcanoes, understood as Soraya Layton-Jaramillo1, Araceli Garcia-Yeguas1, Jane H. Scarrow1, Eveling Espinoza2, Carlos Rubi3, Francisco Javier Carrillo-Rosua1 1University of Granada, Granada, Spain. 2Instituto Nicaragüense de Estudios Territoriales, Managua, Nicaragua. 3University of Nicaragua, Managua, Nicaragua Corresponding author: araceligy@ugr.es

Method

A descriptive research



was carried out, through the analysis of the drawings of volcanoes made by school students participating in the PREVIA project

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Fig 1a. Elongated acute isosceles shape

Sample and instruments

The sample is made up of
262 students (38.2% from 7
to 9 years old and 61.8% from
10 to 15 years old), from three
schools located in the area
of Managua, around the
Apoyeque lagoon, chosen by
convenience.
For the study a
questionnaire was applied,
in which the students were
asked to draw a volcano
freely

manifestations of their mental models, in a sample of primary school students from three schools in Nicaragua, located in volcanic risk

Conclusions

The mental model of volcanoes that the students participating in this study have, is more influenced by what they see in media images, than by their natural environment. It is important to implement pedagogical strategies that strengthen their ability to observe the environment and help them recognize the threats and risks of volcanoes, in order to promote their informed participation in disaster mitigation plans developed by the public administration.

Results and discussion

areas.

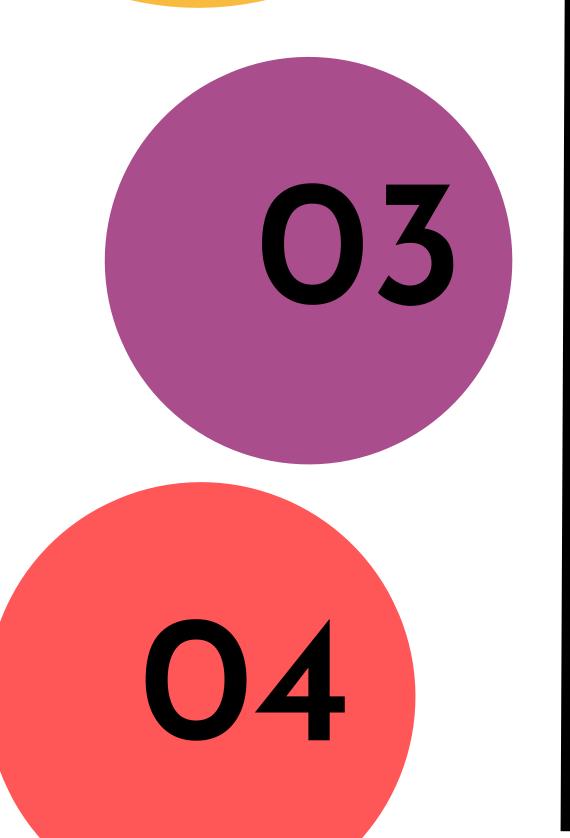
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Children in both age groups most frequently drew the volcano as an elongated acute isosceles triangle (Fig la). None of the participants drew a volcano with similarities in the shape to the Apoyeque volcano. In this regard, in the collection of previous ideas, Kirby (2022) found that volcanoes are usually considered as a high peak with a crater at the top.

pars old 10 to 15 yea



Data analysis

The analysis of the drawings was performed with the Nvivo V.11 software, for the two student groups differentiated by age, following a deductive process according to the categories proposed by Perales et. al. (2021) and García-Yeguas et. al. (2022): volcano shape, internal structure, volcano association, volcano color....

Volcano shape	/ to 9 years old (n=100)	10 to 15 years old (n=162)
Cylinder	8.00%	9.3%
Cylinder-Triangle Hybrid	31.00%	31.5%
Elongated acute isosceles	45.0%	43.2%
Obtuse angled isosceles	9.0%	14.2%
Other	7.0%	1.8%



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