

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

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Introduction

The objective of this work is to know the students' previous ideas about volcanoes, understood as manifestations of their mental models, in a sample of primary school students from three schools in Nicaragua, located in volcanic risk areas.

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

Children in both age groups most frequently drew the volcano as an elongated acute isosceles triangle (Fig 1a). 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.

Method

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



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

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	7 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%