

LESOTHO HIGH SCHOOL STUDENTS' CONCEPTIONS OF EARTHQUAKES

'MALITŠOANELO NTHATI THAMAE

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DECLARATION

I declare that, apart from the assistance acknowledged, this research report is my own unaided work. It is being submitted in partial fulfilment for the Degree of Master of Science at the University of the Witwatersrand, Johannesburg, South Africa. It has not been submitted before for any degree or examination in any other university.

'Malitšoanelo Nthati Thamae

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ABSTRACT

This study examined conceptions about earthquakes held by the selected high school students in Lesotho. A survey was carried out at one high school with students from three different grades; Form A students who had not yet received formal instruction about earthquakes, and Form C and Form D students who had dealt with the topic in school. Some of the students in the sample had experienced an earthquake. A diagnostic test was used to elicit conceptions from 130 students. Follow-up interviews were conducted with 6 students, with the purpose of probing certain responses from the test. In particular, test responses that were probed included; first, those which showed confusion between earthquakes and volcanoes, and second, those which used indigenous beliefs to explain causes of earthquakes.

The conceptions held by students in the three grades were analysed and compared. From the results the following findings emerged: First, many students appear to be confused in their understanding between earthquakes and volcanoes, particularly those who had received classroom instruction on these concepts. Some of the students could not distinguish between an earthquake and a volcano, while others seem to think that earthquake occurrences are always linked to volcanic activity. Second, several students across the three grades could not differentiate between *movements of the earth's crust* which result in earthquakes and the larger scale movements, i.e. the rotation and revolution of the earth. Third, generally students across the three grades appear to have scientifically correct ideas about the causes of earthquakes. Also, the majority of students attributed the causes of earthquakes to water, perhaps because the earthquake in their area was caused by impoundment of the dam. However, students seemed to be uninformed about the mechanisms or processes behind the occurrence of earthquakes. Finally, a few students across the grades used indigenous beliefs to explain earthquakes. With an awareness of the conceptual and cultural difficulties students in Lesotho are likely to encounter in the learning of earthquakes, teachers can prepare in advance to handle such issues, as they are critical in the understanding of the phenomenon of earthquakes.

KEYWORDS: earthquakes, students, conceptions, alternative conceptions.

To my entire family, especially
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