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Identifying and finding the impact of Grade 8 learners' alternative conceptions of lightning

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ABSTRACT

The National Curriculum Statement (NCS) highlights the extensive need for developing insights and respect for different scientific perspectives and a sensitivity to cultural beliefs, prejudices and practice in society. The study wais prompted by the fact that most learners have an African conception of lightning which in most cases is not in agreement with the conventional definition of lightning.

The focus of this study was to identify the learners' conceptions of lightning. Secondly it attempted to elicit, describe and assess the learners' process of learning Western conception of lightning. And finally, it developed a model of teaching that can be used to help African learners accommodate the two conceptions without contradiction or hindrance. This research utilized qualitative research design to a large extent. A total of 33 participants responded to a questionnaire and 16 were interviewed. In response to question 1, learner's mentioned that they believe that lightning is a result of witchcraft, it demonstrates the anger of ancestors or it is used by god to demonstrate his existence.

These findings suggest that the learner's African conception is a hindrance to the learning of science because learners' cultural identity is often very different from the culture of conventional science. Learners experience a type of cultural clash whenever they attempt to learn science meaningfully. A substantial number of learners indicated that the African conception prohibits them from learning the western conception. Further findings suggest that learners do not challenge the validity of the conventional explanation of the origins of lightning. But they believe it is different to the African conception.

In summary this research revealed that there is a strong need for educators to be sensitive and knowledgeable about the African learners' way of thinking. It suggests a teaching model that is aimed at helping educators to deal with misconceptions instead of attempting to change a belief system.