

AN INTERCULTURAL EXPLORATION OF CONCEPTIONS IN THERMAL PHYSICS

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ABSTRACT

An impressed enthusiast of thermodynamics once predicted that it would 'never be overthrown'. Many years later, the beauty of thermodynamics has become increasingly elusive for students, hidden under a cloak of perceived obscurity and conceptual difficulty. This study aims to find what makes thermodynamics inherently difficult, or in fact if this is generally the case, by analysing a wide ranging sample of responses to a two part thermodynamics question. The analysis is an in-depth qualitative content analysis facilitated by the computer software NVivo. The sample includes responses from a range of ages from middle school to adult and from countries in Europe, North America and Africa, as well as Australia. A content analysis with a focus on the use of language in thermodynamics will be presented in this report, along with the implications for thermodynamics instruction.

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