

6 - Nature of Science: History, Philosophy and Sociology of Science | Empirical

SP - (15860) - ARGUMENTATION AND INTELLECTUAL HUMILITY IN SECONDARY SCIENCE STUDENTS' DISCUSSIONS

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Short Abstract

The paper provides a theoretical synthesis of perspectives on research in argumentation and intellectual humility for the purpose of empirically investigating secondary students' discussions. A key connecting theme concerning the concepts of 'argumentation' and 'intellectual humility' is the recognition that certain evidence supports certain beliefs with 'varying epistemic strength'. Toulmin, for example, prioritises the use of modal qualifiers and conditionals that hedge the strength of claims according to the varying epistemic strength with which evidence supports them. Further, tracking positive epistemic status in intellectual humility inherently signifies that evidence will support a claim with varying epistemic strength; otherwise, a continuous tracking would not be required. The empirical study involved thematic analysis on semi-structured interviews with forty-two 12 year old students conducted in the context of a funded research project in the United Kingdom. Participants were asked to express whether they supported believing that God created the universe, whether evolution created the world, or whether a combination of both created the universe. Results indicated that students cannot independently articulate why the evidence they refer to supports the claims they make. Furthermore, participants provided partial justifications, and in some cases, could not distinguish between evidence and claim. Further, many students did not feel they needed to justify their beliefs, merely stating they believed a claim because that was their belief; others referred to upbringing determining their beliefs. Implications for science teaching and learning are discussed.