

### SP - (16226) - RESPONSES TO ANOMALOUS DATA: THE ROLE OF DATA ORIGIN AND CONTEXT – A SYSTEMATIC REVIEW

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#### Short Abstract

The use of data in science education is an important aspect of scientific reasoning processes. However, data can be contradicting to initially held conceptions about a phenomenon and takes on the role of cognitive conflict that can induce a process of conceptual change. Previous research empirically identified and classified responses to anomalous data that might influence and sometimes hinder learning in the sense of conceptual change. One of the most influencing works in this field of research is the taxonomy of responses to anomalous data proposed by Chinn and Brewer in 1993. Yet, even if the taxonomy has been validated by other studies, there is critique on Chinn and Brewer's framework addressing aspects of the used context and the origin of the anomalous data. Previous studies vary in the applied methodological approaches and the lack of a systematic overview might limit their evidence for validation. Hence, the aim of this study is to answer the question how classifications of responses to anomalous data differ related to the methodological aspects *type of context* and *origin of the data* by conducting a systematic review. A literature review resulted in 178 publications, of which 17 were selected and analysed using an evaluative structured qualitative content analysis and subsequent quantitative analysis and summaries. Based on the used contexts and the origin of the used data in the reported studies, the interpretational focus for classifying responses to anomalous data changes. The results of the review offer an overview that can help researchers to decide on methodological approaches and theoretical frameworks and identifying gaps in this field of research.