

## Evaluating the Prominence of Chemical Phenomena in Chemistry Courses

**Authors :** Vanessa R. Ralph, Leah J. Scharlott, Megan Y. Deshaye, Ryan L. Stowe

**Abstract :** Given the traditions of chemistry teaching, one may not question whether chemical phenomena play a prominent role. Yet, the role of chemical phenomena in an introductory chemistry course may define the extent to which the course is introductory, chemistry, and equitable. Picture, for example, the classic Ideal Gas Law problem. If one envisions a prompt wherein students are tasked with calculating a missing variable, then one envisions a prompt that relies on chemical phenomena as a context rather than as a model to understand the natural world. Consider a prompt wherein students are tasked with applying molecular models of gases to explain why the vapor pressure of a gaseous solution of water differs from that of carbon dioxide. Here, the chemical phenomenon is not only the context but also the subject of the prompt. Deliveries of general and organic chemistry were identified as ranging wildly in the integration of chemical phenomena. The more incorporated the phenomena, the more equitable the assessment task was for students of varying access to pre-college math and science preparation. How chemical phenomena are integrated may very well define whether courses are chemistry, are introductory, and are equitable. Educators of chemistry are invited colleagues to discuss the role of chemical phenomena in their courses and consider the long-lasting impacts of replicating tradition for tradition's sake.

**Keywords :** equitable educational practices, chemistry curriculum, content organization, assessment design

**Conference Title :** ICCE 2022 : International Conference on Chemistry and Education

**Conference Location :** Melbourne, Australia

**Conference Dates :** February 07-08, 2022