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Identifying Student Misconceptions in Biomolecular Visualization in the Context of the BioMolViz Framework

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Abstract

BioMolViz is a community dedicated to improving visual literacy instruction in biology, chemistry, and biochemistry classrooms. To help instructors approach biomolecular visualization instruction, visual literacy concepts are catalogued through the BioMolViz Framework, which presents overarching themes that are subdivided into learning objectives and goals. A main focus of our project is the creation of open-access assessments associated with each of the Framework learning goals. Through nationwide workshops held over the past four years, faculty teams wrote and revised assessments to probe students' visual literacy utilizing the BioMolViz Framework. As part of a pre-workshop activity, we asked faculty to identify student misconceptions in visualization that they observed in their teaching. These were collected, mapped to the framework, and coded for Bloom's taxonomy level. Frequently mentioned misconceptions of broad relevance to biomolecular visualization skills were mapped to the BioMolViz Framework and formatted into a biomolecular visualization literacy misconception survey. We present the process of survey development and invite educators from any higher education institution to contribute to understanding the prevalence of these misconceptions among student populations by participating in our survey. We hope the survey data will allow the community to develop better pedagogical approaches to biomolecular visualization through awareness of student

> misunderstandings. Our collective contributions can help our students overcome the most common challenges in biomolecular visualization while improving abilities in this foundational skill set.

This is the full abstract presented at the Experimental Biology meeting and is only available in HTML format. There are no additional versions or additional content available for this abstract.