

## **Stimulating Reflection Processes with an Eye-Gaze-Augmented Retrospective in Organic Chemistry**

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### **Abstract**

Understanding complex representations and the respective implicit content they convey to solve domain-specific problems is a crucial skill in a scientist's professional development, i.e., of an organic chemist. Although various studies indicate that students often struggle to derive implicit information from organic chemical representations, there is a lack of instructions to foster students' comprehension of such complex representations individually in the sense of differentiated instruction. A potential differentiated instructional approach may be the reflection on one's own problem-solving process, as critically questioning one's underlying assumptions in order to draw individual consequences for future problem-solving situations. Especially in domains with complex representations like Organic Chemistry, eye tracking may support these reflection processes by providing insights into information inaccessible to a learner. Therefore, a qualitative, exploratory study has been conducted to investigate to what extent an eye-gaze-augmented retrospective can stimulate students to reflect on their problem-solving process. In the presentation, results on the extent to which the structural complexity of observed reflection patterns are linked to productive, conceptual sense-making will be discussed.