PATTERNS DEMONSTRATED BY COLLEGE STUDENTS IN DRAWINGS REGARDING SODIUM CHLORIDE AND IMPLICATIONS FOR THE CLASSROOM

Solange Locatelli[a], Mauro Mocerino[b], Alexandra Yeung[b] and David Treagust[c]

Presenting Author: Solange Locatelli (solange.locatelli@ufabc.edu.br)
[a]Center for Natural and Human Sciences, Federal University of ABC, Santo André, Brazil
[b]School of Molecular and Life Sciences, Curtin University, Bentley WA 6102, Australia
[c]School of Education, Curtin University, Bentley WA 6102, Australia

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One of the important aspects in Chemistry Education is to enable students to represent explanatory models at the submicro level, which are difficult for students to understand (Davidowitz & Chittleborough, 2009; Kelly et al., 2010, Locatelli & Davidowitz, 2021, for example). However, students' understanding of submicro entities is necessary to explain the behaviour of macroscopic phenomena (Davidowitz & Chittleborough, 2009), as well as to make the transition between the three levels of representation: macro, symbolic, and submicro levels. Taking this into account, it is essential to research possible representation patterns demonstrated by students when representing chemical substances, as well as their reactions. This study presents preliminary results of ongoing research, considering 18 Brazilian undergraduate students, being first-year college students. The activity consisted of asking students to represent kitchen salt, a student-generated drawing, in the best way for them, without consulting any material beforehand. Next, the drawings were analyzed to find possible misconceptions in chemistry. The findings showed that few students represented the macro level (5/18), most considered the symbolic level (15/18), and for the submicro level, only 6 considered ionic clusters and 11 of them considered salt as formed by "molecules". Despite the limitation of the considered sample, it can bring implications for the teaching of this topic, in which the teacher will be able to think and propose metavisual activities that allow the revision of chemical concepts (Locatelli & Davidowitz, 2021). For example, to review the incorrect designation "molecule" of salt, as well as proper access to representational levels. In line with this, Park and colleagues (2020) have suggested that teachers can consider the different levels of representation (in our case, chemistry) with the aim that students can build scientific explanations using their generated drawings. Acknowledgments to FAPESP for grant #2022/16395-3.

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