E-Abstract Book

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HOW TO MAKE CHEMISTRY INCLUSIVE FOR BLIND OR LOW VISION (BLV) STUDENTS: EXAMPLES FROM DIFFERENT CHEMISTRY TOPICS

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Abstract
Science has emerged as one of the most important content areas in the core curriculum. However, traditional pedagogy is highly dependent on visual models of chemistry phenomena and chemistry instruction typically relies heavily on visual imagery and those with little or no vision have few avenues available to them to access science content and processes.

Blindness or low vision (BLV) is defined as visual impairment, which is the decreased ability to see to a degree that causes problems in education as well as in daily life. Students with visual impairment struggle with learning concepts in chemistry due to using visual representations such as figures, images, equations and graphs. However, chemistry could be made more inclusive to those students through collaboration and specific adaptation both in the classroom and laboratory by providing simple adaptations or doing some essential modifications to help them gain experience with measuring, balancing and weighing a variety of materials with simple adaptations or modifications.

In this talk, I will present examples of how they are adapted to the needs of students with BLV from different chemistry topics such as heat and temperature, heat transfer (Kızılaslan, Zorluoğlu, & Sözbilir, 2019; Kızılaslan & Sözbilir, 2020), and chemical representations (Teke & Sözbilir, 2029). The activities and materials used are based on economical and easily accessible everyday materials as well as 3D printed materials intentionally developed to the needs of BLV students. The findings showed that students' learning and motivation towards learning chemistry are enhanced.

Keywords: Inclusive chemistry education, visual impairment, blindness or low vision (BLV)

References

1. Kızılaslan, A., & Sözbilir, M. (2020). Activities to teach heat and temperature concepts to visually impaired students. *Chemistry Teacher International*, *20*(2), Article number: 20180005. https://doi.org/10.1515/cti-2018-0005
2. Teke, D., & Sozbilir, M. (2019). Teaching energy in living systems to a blind student in an inclusive classroom environment. *Chemistry Education Research and Practice*, *20*(4), 890-901. doi.10.1039/C9RP00002J
3. Kizilaslan, A., Sozbilir, M., & Zorluoglu, S.L. (2019). Making science accessible to students with visual impairments: insulation-materials investigation. *Journal of Chemical Educ*ation, *96* (7), 1383-1388. doi:10.1021/acs.jchemed.8b00772