Reading comprehension in chemistry education: the promise of primary research articles

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Science educators have demonstrated the benefits of integrating primary literature into the undergraduate curriculum [1, 2]. This paper describes the use of primary research articles in a scientific communication course at the University of São Paulo, Brazil. The main goal is to expose undergraduate chemistry students to the primary literature, demonstrating how they can understand and benefit from using it. In the first part of the course, students are taught explicit strategies for critically reading primary literature regarding the possibilities of biodiesel production and purification. In the second part of the course, the students present six primary research articles in a forum, which simulates a symposium that might take place at a professional meeting. Examples of symposium topics included the use of clays for purification of biodiesel and treatment for purification water of biodiesel using electrofloculation. For each of the six articles, it was solicited a student to be a presenter, and all presenters have Power Point slides. The slides were analyzed using a theoretical framework proposed by Antonio Marcuschi [3], which incorporated key concepts linked to reading comprehension (notion of reading horizons).

The results indicate the symposium motivated students to read the primary research articles with sufficient comprehension to explain the research to their classmates. Besides that, the strategy serves as a foundation for developing higher-order cognitive skills (HOCS) throughout the undergraduate curriculum [4].

Acknowledgments
FAPESP (Proc. n° 2016/20073-0) for financial support.

References

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