

Exploring the influence of using the Teaching for Transformative Experiences in Science (TTES) model in an online teaching unit on high school biology majors' conceptions of biology evolution

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by

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Summary

A person's experiences have a profound influence on her/his thinking and decision-making. The value a person attributes to a particular subject might determine the extent of its allowed influence, and the person's tendency to engage with the subject independently. It appears that deeply influencing students' scientific worldview, the

value they assign to it, and their tendency to independently cognitively engage with the subject is possible when teaching is designed according to the Teaching for Transformative Experiences in Science (TTES) model. The profound effect the TTES model has, makes it important to use for essential subjects, like evolution, that might profoundly contribute to the student's scientific literacy. Evolution is extremely important both as a core concept in biology, and as a key to its understanding. Yet, evolution is a difficult subject to comprehend, as testified by the variety of alternative conceptions that are highly prevalent among the general public and among students from all levels of education. Here I asked whether it is possible to influence students' concepts of evolution and their comprehension using an online evolution teaching unit that is designed according to the TTES model. To answer this question, I have designed an online evolution teaching unit according to the TTES model. The TTES model was previously used only solely as a classroom teaching model. The unit is aimed to encourage the use of evolution concepts beyond the classroom experiences, inspire recognition of evolution's value for the student, and motivate the expansion of perception regarding evolution. Students from different classrooms in different schools learned evolution through the unit. Evidence of a transformative process, and of conceptual change toward the scientific view of evolution appeared, along with intriguing characteristics of the evolution learning process. This evidence constitutes proof of concept for the feasibility of a transformation in the students' concepts regarding evolution through the online evolution teaching unit, which render a continued research worthy.