

TRANSFORMATIVE LEARNING

When Transformation MUST Happen in the Classroom

Biology teachers have long been on the front lines of educating for Transformative Learning (TL) because the a-ha moment at which students accept the scientific truth of the age of the planet, for instance, in spite of the contradiction this may present to their faith in a different interpretation, is a critical learning outcome. Changing this perspective about one's relationship with the planet, with its flora and fauna, and working through the oftentimes unsettling consequence of deciding how to adjust to the change in personal beliefs is truly transformative in many ways.

One of the most important aspects of such a transformation can be in coming to understand and to trust the scientific method as a useful process for learning about how the universe works. So in addition to the content in the discipline (the scientific principles upon which evolution is built), biology faculty also sometimes plan educational activities to help students develop trust in good science.

It is little wonder, then, that much research within biology education exists concerning how to help students change some fundamental perceptions.

In other words, how to create Transformative Learning experiences.

In a 2008 article, "Changing Minds? Implications of Conceptual Change for Teaching and Learning about Biological Evolution," Sinatra, Brem, and Evans write: "Helping students understand evolution is not simply a matter of adding to their existing knowledge, but rather, it means helping them to see the world in new and different ways" (p. 189).

"Helping [students] see the world in new and different ways" can describe Transformative Learning no matter what the discipline and in any of UCO's Central Six Tenets. For example:

- A study abroad experience in which a student interacts with people of another culture and differing belief systems and comes to understand that her prior limiting conception of these people based on misguided prejudices and on what others may have told her instead of what is actually the case causes her to see the world in a new and different way.
- A student learning in a health class that scientific evidence is accumulating which defines Alzheimer's Disease as Type 3 Diabetes and who has a grandmother suffering from Alzheimer's suddenly sees his world in a new and different way as he redefines his relationship to the junk food and empty calories which before had been common in his daily life.
- Removing the blinders adopted as part of a comfortable life which has kept her away from homelessness and poverty, a student takes a class with a service learning component that puts her for a few hours in, first, a homeless shelter, and

then a food bank. She has a transformative experience which leads her to think differently about the interconnection of all humans and what responsibilities attend to that connection when she thinks in this new, different way about her involvement with others and everyone's connection to each other and the world.

Do Sinatra, Brem, and Evans have advice about what teaching strategies are more likely to bring about the perception change that we seek in Transformative Learning?

Perhaps two takeaways from the article can be fairly broadly applicable across disciplines. The first idea is that certain kinds of assignments are far less likely to engender perspective change than are others. Reporting on work by Dole and Sinatra (1998), the article's authors share the hypothesis that

the low level of cognitive engagement needed to successfully complete many instructional activities requiring only superficial, surface-level processing and little reflection is not likely to result in significant conceptual change. For change to occur, the tasks must promote deep processing, elaborative strategy use and reflection. (Sinatra, Brem, & Evans, 2008, p. 193)

Adult education theory about Transformative Learning has long held that the reflective component is important (e.g., Kitchenham, 2008), so one thing faculty can do to build the crucible within which TL takes place is to create assignments that require a reflective piece. One best-practice that all faculty can adopt which is common within online learning is to require student reflection about course content and assignments and then have students share those reflections for discussion among peers. While this is not suitable for all assignments or content, it can work in many situations to get more of the reflective practice happening among students that will help foster TL.

The second takeaway from Sinatra, Brem, and Evans' 2008 article is that transformation is more likely to occur when students internalize the connection between the material and their personal lives:

. . . understanding the background students bring to their studies is important. If students do not view the topic of natural selection as personally relevant because the content is not connected to their personal lives, they are less likely to experience change. This fits well with the call for evolution educators to make the topic more personally relevant for students by explaining why they must take a full course of antibiotics or how ideas from evolution are used in developing treatments for diseases . . . (p. 193)

The two examples of taking the full course of antibiotics in order to preserve one's personal health and how evolutionary concepts help scientists develop medicines and cures which have had and will continue to have a positive personal benefit for students illustrate how a personal connection derives from course content. Similarly, personal connections can be found in other disciplines: history courses exploring events which seem to be replicated in today's headlines and which have an impact on students' lives

is one example; another is a mass communication course's study of advertising techniques hitting home with students who haven't, until that point, realized their unconscious surrender to marketing manipulation.

We can all learn from our biology colleagues' experiences confronting a regular opportunity in their classrooms to engender Transformative Learning among their students.

Dole J. A., & Sinatra, G.M. (1998). Reconceptualizing change in the cognitive construction of knowledge. *Educational Psychologist*, 33(2/3), 109–128. Available: http://juneprer.com/researchers/pdf/dole_article_2.pdf

Kitchenham, A. (2008). The evolution of John Mesirow's transformative learning theory. *Journal of Transformative Education*, 6(2), 104-123.

Sinatra, G. M., Brem, S. K., & Evans, E. M. (2008). Changing minds? Implications for conceptual change about teaching and learning about biological evolution. *Evolution: Education and Outreach*, 1(2), 189–195. Available: <http://www.drbrem.net/sinatrabremevalms.pdf>