

## **Using process-focused assessments for teaching sustainability**

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Thinking about how we assess students is as important as the methods that we use to convey the course content. I think that most assessment methods (e.g. tests, quizzes, essays, projects) focus on the products created by the student (i.e. are goal oriented) rather than on the process that the students go through in completing the assessment. This end-product-focused method of assessment may discourage students from taking risks and may hinder their creativity. There are many benefits to these forms of assessments, however, including the fact that most of our careers are evaluated based on the products that we produce.

I am not advocating that we should get rid of assessments that evaluate students based on the products that they produce. Rather, I believe that we should also consider adding assessments that evaluate students based on the process that they go through in completing the assessment. This type of assessment could be beneficial for multiple reasons. First, it would encourage students to be mindful about the process that they are using in completing the assessment. Focus on process is important in sustainability-related issues because moving towards more sustainable systems includes developing and utilizing processes – in addition to end products – that are sustainable. Second, process-focused assessments could encourage students to be more creative and to take intellectual risks. At least from my own experience as a student, I was keenly aware that earning high grades had important ramifications for getting scholarships, getting into graduate (or professional) school, and finding a job. As a result of that, I would have been very hesitant to go beyond my developed skill sets on an assessment, which limited my opportunities for taking risks and being creative. Third, the assessment could be designed for all students to go through a similar process, but the products produced for the assessment could be highly variable, allowing the students greater freedom in completing the assessment.

Here I will give one example of a process-based assessment where students would be using systems thinking to assess and visualize a complex, sustainability-related issue, such as the effects of food on the environment and human health. In this example, the students would have been studying food systems for multiple weeks. As the students were reading and discussing the topic they would be told to focus on the interrelations and feedbacks related to the various issues within the topic – and other topics that feed into the topic at hand. A process-based assessment that could be used for this portion of the course (rather than an exam, for example) would be to develop a way to visualize this topic. The students could do this by developing a concept map, working through one case study in depth, using photographs to portray aspects of the topic, or whatever other method they came up with. Rather than being assessed on the product that they developed, which should be presented to the class in some form to show the class the diversity of ways of addressing an issue, the students would be assessed on the process that they went through to develop the product. For the assessment, the students could be asked – either in writing or verbally – to describe the process that they went through in deciding how to select the method that they did, what challenges they encountered when using the method that they selected, what benefits and limitations the method that they chose had compared to other methods

that they considered (i.e. identify tradeoffs among methods), and what previously-developed skills did they utilize and what new skills did they have to develop.

Although there are likely to be problems with implementing process-focused assessments – including student uncertainty – I think that it is worth considering and experimenting with other forms of student assessments because of their importance in implicitly telling students how they should address and solve problems.