

Project Reflection

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Context: Out of class; Thermodynamics

Keywords: engineering practice, peer evaluation

Student Activity Time: 1-2 hours

After an assignment with an industry trainer, students reflected on their learning.

Introducing the Reflection Activity

As part of a challenging unit in a thermodynamics class, the educator invited an industry trainer to the class to present hands on material. At the end of this hands-on unit, students reflected on their experience. The purpose of the reflection was for them to be able to apply the in-classroom knowledge to a hands-on unit.

The industry trainer engaged students in an assignment related to the material during which, students created and solved their own problems related to the demonstration. After students created and solved their own problems, they switched assignments with a peer to review each other's assignments. At the end of this hands-on unit, students reflected on their thoughts related to creating and solving their own problem, what they thought of doing a peer review, and how they're going to change or look at their education process based on this project. After students submitted the assignment, the educator graded the assignment using a quality and quantity grading approach. The reflection assignment was worth 15 points or about 10% of students' grade on the overall assignment.

In terms of outcomes, after students engaged in this reflection activity there was potential for them to better understand the difficult content.

Recreating the Reflection Activity

	Description
1	Schedule an industry trainer to present and engage students in an activity.
2	Develop a reflection activity to accompany the industry trainer activity.
3	Engage students in reflection on the industry trainer assignment
4	Grade the reflections.

In the Words of the Educator: Tips and Inspiration

Be aware that students have different opinions about the activity. Like with most teaching activities, students have a variety of opinions. Some students wished they had more time, some wished they had less time, some wished they had more projects like this, some thought this project was a waste of time, etc.

Talk about why you are engaging students in a reflection activity. I suggest not just handing out a reflection activity, but to talk about why you're doing it and what

you're hoping. So I usually say, you're going to do this, and you're going to think about it, and I tell them my ideal case. I'll tell them what I think an average student would do, and then I will challenge them to be better than the average student. So I talk about my expectations for the reflection activity and why it's worthy of their time.

What was your inspiration for implementing the reflection activity? Jim Widmann was doing reflection activities in his projects, and talked about it at a faculty meeting. Trevor Harding, also, was doing it and at first, I thought, that's just a waste of time, how are you going to get the students to want to do that? Because they are busy, to take time to reflect when they don't want to is like pulling teeth. So, I tried to incorporate it into class because I think those two are fantastic instructors.