Session 12

Expectations for Success: Motivation and Learning

The Submersive Classroom

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When I recently interviewed my high school science teacher, Jay Cutler, he reminded me how my best friend and I completely submerged ourselves in programming a primitive computer. I discussed the motivating classroom environment he created with my five younger siblings, whom he also taught. All but the youngest agreed that he ran an open classroom. If you kept up on your required work, he would allow you to pursue almost any project with a connection to science. (Smith, 2016)

At the time, in the early 1970s, computers were just beginning to reach the general public, and hence new and exciting. Two years later I would receive college credit for a slide rule class and program mainframe computers with punch cards. My friend and I were both elated that we could program the device we were handed to collect and analyze data. Although I don't remember the function of the device, I do remember that when we had difficulty programming it, we collected and read any scrap of paper in the high school library that mentioned programming (this was decades before the world wide web when the magazine *Popular Science* was the library's best source for programming techniques and tips), and persevered through multiple time consuming iterations. I don't even remember if we ultimately succeeded in creating a working device.

Multiple factors contributed to motivate us to submerge ourselves in the project. These factors included an authentic task that we found intrinsically interesting and a classroom environment that allowed us more autonomy than any I subsequently experienced until I entered graduate school.

Above all, Mr. Cutler encouraged deep learning. (Darling-Hammond *et al.*, 2003) He expressed his delight both at our submersion in our project and in our colleague, ultimately our

class valedictorian, who often solved a problem in multiple ways on a test. His tests were difficult, constructed by leading science and engineering institutions in the country to allow the most advanced high school students in the country to show that they were well-grounded in the concepts underlying the calculations and procedures. Many students and parents complained as outstanding grades on the standardized tests were sometimes as low as 50% of the questions correct. He didn't concern himself with the scores on the standardized tests as much as the class projects and participation from which he could assess the depth of our understanding of concepts not necessarily covered on the tests.

My goal is to create submersive classrooms like the ones Mr. Cutler created. To do that I will get to know students and their interests, as he did, push for focused curricula as he allowed in the days before nationally standardized tests, and support my students in autonomous pursuit of their own interests.

References

1. W.J. Smith 2016. Jay Cutler: Engaging Teacher. A video essay. Alameda, CA: WJ Smith i-Movie Productions.
2. Darling-Hammond *et al.* 2003. The Learning Classroom: Theory Into Practice. Detroit: Annenberg Media.