

People learn by solving problems. *The Scientist In the Crib* explains the natural process: We teach ourselves by setting a goal. We strive for that goal, testing different resources and strategies, until we finally succeed. Having solved the problem, we remember the process by which we achieved it. We have *learned what to do*. When I develop a curriculum, I design the course to support the natural process of learning. I give students a problem to solve and help them to teach themselves.

A curriculum starts with a relevant goal. I ask, what will a student want to do with the knowledge being offered? The goal must be novel, or students will fall back on old learning. The goal must be obvious, so students can imagine its final form. The goal must be valuable, so that the work is its own reward. Finally, the goal should be a direct application. Reaching the goal should be evidence of having learned how to get there. In my “Acting for Non-Majors” classes, I found an effective goal to be *rehearsing and performing a one-act play*. Few of my students had ever done it before, but all of them could imagine doing it, and they worked hard because they wanted a good show. Then, their final public performances demonstrated everything they had learned. The most effective curriculum is designed around a goal whose success requires its target knowledge.

The problem-solving process defines the curriculum. Each new activity introduces the next logical step toward the goal. Each new class session provides the knowledge required to take that step. An immediate connection between action and information is critical. If activities outpace knowledge, students get stuck. If knowledge is given with no application, students disengage. A perfect balance keeps students steadily advancing toward their goal. Learning is best in small groups, who can share ideas and support each other as they move forward together. A lecture is less ideal, but can still introduce a problem and, with demonstrations and examples taking the place of assigned activities, keep students engaged in the process by encouraging them to stay one step ahead of the lecturer. In either case, a curriculum guides students by giving them the resources to find their own solution.

Students must solve the problem themselves. I use class time to explain the principles that underlie successful strategies; then I let the students figure out what to do. They will do this in the most natural way: they will use the principles to form hypotheses, use the hypotheses to make predictions, and use the predictions to test the principles. They test the principles, of course, by doing the work. Students thereby teach themselves how to apply abstract principles, because they discover concrete relationships between action and result. My essential function, therefore, is to enable students to assess their own work. If students can recognize a wrong result, they can reject bad hypotheses and try something new. If students can recognize a good result, they can invent creative ways to achieve it. This is how I make my classroom a safe environment, following the example of Keith Johnstone’s *Impro*. Students are not afraid of making mistakes. They learn that understanding mistakes is more important than avoiding them. When they make a mistake and don’t understand why, I never “correct” them; instead, I help them see the principle by which they can guide themselves. Given the freedom to make mistakes, students develop their own pathways to success.

My role as teacher is to clear the path. All human beings are capable of learning. All students, therefore, are capable of success. If a failing student is making an honest effort, their failure is my fault. I must be humble and help them discover their own perspective. One student experienced a breakthrough; after exploring her new understanding she gushed, “It’s so *easy* when I don’t do what you tell me!” She had used the learning principles in her own way to create her own solution. This is the natural formula by which we all learn.

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