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"Why Do I Need to Know This?"

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Do students ever ask you that question? As an assistant professor of mathematics at a community college, I regularly get the question. Most of my students are not mathematics majoring, but are taking the class to fulfill a math requirement. I wonder if you find the question as frustrating as I do.

Recently I turned the question back on the students. I asked them why they were taking the class. You can imagine the responses: it's required for their major; to get a good grade and raise their GPA; and so they wouldn't fail the next course in the sequence. It's no wonder students are disengaged and not very motivated. I started asking myself how I could motivate them to actually learn, grow, expand their brains, and develop the important skills we are trying to teach them.

At first, I couldn't imagine why anyone would think they didn't need to learn some math, or any of the essential content that we teach in college. The skills that students learn in our courses, such as organization, critical thinking, problem solving, and time management are essential. They're skills that students will use every day no matter what professional career path they choose. And then it dawned on me—in my courses students think they're just learning how to solve a set of homework problems. That's really sad, but I'm glad I figured it out because I now can start trying to change their perceptions.

I'm working to be more intentional in my classroom about acknowledging the students' disconnect between what I'm really teaching and what they think they're learning. I'm committed to showing them that what they're learning will help them reach their professional goals. Here's a list of things I've been trying.

Helping students understand that courses are required for good reasons. We all present our course objectives on the first day; a list of discipline-specific concepts that students should understand or skills that they should be able to do at the end of the course. These are very important, but they are most likely not what is going to motivate the students to be engaged or succeed in these required, general education courses. There needs to be a separate list that identifies those "hidden" skills that students acquire in the process of learning the content. And not only do students need to hear what those objectives are, they need to know why they're important.

A quick Google search on the top 10 skills employers want yields lists from sources such as Forbes, CNN, US News & World Report, Linked-In, and Fox Business, and most often list decision making, problem solving, communication, organization, analyzing data, and information processing. I’ve been showing these lists to students and explaining how learning math helps to develop these skills. We love the subjects we teach, but our students don’t. However, if learning math can help them get where they want to go, they might get more engaged with the content.

Helping students develop a plan for success. I tell my students that being successful in a math class involves organization, paying attention to detail, and reducing the risk of making mistakes. We must get students thinking metacognitively. How they are studying is as important as what they are studying. They must be thinking, when they do their homework, about how those problems will look when they show up on the exam. Plans for success also include time-management, with students developing an accurate understanding of how much time it’s going to take to succeed in the course. If they master time management in college, that will serve them well in the work force.

Intentionally pointing out how skills are being developed. This doesn’t have to be a 15-minute presentation every week. It can just be mentioned in passing. For example, when we’re done working on a problem in class, I ask the students to think about what they just accomplished. They need to look at the process—the information presented, all of the decisions made on which steps to take, the tools we used to form each logical step of the solution, how we organized the work, paid attention to details, and stated the conclusion once we got there. These are skills students will be using every day for the rest of their lives. When I point that out to students, suddenly I have a lot more of them paying attention. They’re motivated, engaged, and ready to learn!

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