© Copyright ChE Division of ASEE 2024

TAKE A RISK AND BECOME A STUDENT

Professors are accustomed to being the expert in the room. After all, when was the last time you took a risk and tried to learn a new skill that took you outside of your comfort zone? Not a new software program or a new analytical tool in the lab – something where you were *truly a beginner*, such as learning a musical instrument, a sport, a craft, or a foreign language?

Peter Bregman, in his *Harvard Business Review* article "Learning is Supposed to Feel Uncomfortable," states, "Being a beginner at something can feel awkward and embarrassing. And those are hard feelings to feel. But they are the inescapable growth pains that come with learning, developing, and becoming better at something."[1]

Recently I saw a colleague crocheting a baby blanket during a five-hour workshop. I thought, "That looks like something I'd like to try!" My reflections during the process of attempting to learn a new skill reminded me of what my students experience while taking their first chemical engineering course in Material and Energy Balances.

My Experience	Students' Experience	Suggestion for Learners [1]
After buying a crochet hook and yarn, I watch a YouTube® video suggested by my colleague. When I try to duplicate it, it feels awkward. My fingers don't seem to work this way. Why can't I get this? The video makes it look so easy. I'm upset that I spent money on yarn and a crochet hook when I'm clearly not capable of this.	After buying the textbook, I attend the first week of lecture. When I attempt the first homework set, it doesn't look anything like the lecture. Why can't I get this? It seemed so easy in class watching the instructor work the problems on the board. Maybe I'm not cut out to be a chemical engineer if I'm struggling this much with the very first assignment.	Know that it is brave to be a beginner. Courage and vulnerability are required to try new things. Be patient with yourself when you don't get it right immediately.
I try doing the most basic stitch – a chain stitch – 20 or 30 times to have a small win.	I practice drawing and labeling the flowsheet for multiple example problems before moving on to the harder parts of the problem.	Look for low stakes learning situations to develop confidence in basic skills before trying harder things.
An older friend who hears I want to learn to crochet invites me to come over for the afternoon. After four hours of directed instruction, I generate one decent looking granny square. She tells me I've been holding my yarn too tight. I never would have known that from watching the video!	I go to the TA's office hours and work through several problems with their guidance. They don't tell me what do to, but instead ask me questions to prompt me as to how to move forward. When I make a mistake, they can help me see where I went wrong. Now I have a better understanding of the problem-solving strategy I should use!	Seek out help from someone who is more experienced – the instructor, TA, or a more senior student. They can likely help you identify common mistakes and pitfalls, reinforce what you're doing well, and help you self-correct when you go off track.
Once I finally "see" the pattern – I got it! I feel excitement and pride. It may be a while before I'm ready to tackle a baby quilt, but I'm proud of the four squares I was able to complete!	Later in the course, I look back at the earlier material and wonder why I thought it was so hard. Once I "see" the pattern for solving problems, I understand that each bit of new material just adds new tools to my toolkit for solving harder problems.	Don't stop learning! Keep thinking of yourself as a learner and continue to take risks to learn new things.

The process of taking a risk to learn a new skill helped me understand firsthand how my students feel when they take my Material and Energy Balance class – awkward, frustrated, a bit upset or demoralized, wanting so badly to get a win, and euphoric when a small skill is mastered. If it's been a while since you got outside your comfort zone to try something new, take a risk and become a student again! You'll gain a whole new appreciation – and some empathy – for how it feels to be a beginner, and you can share these strategies (some of which may already be in the third column of the above table) with your students to support their learning.

REFERENCES

1. Bregman P (2019) Learning is supposed to feel uncomfortable. *Harvard Business Review*. https://hbr.org/2019/08/learning-is-supposed-to-feel-uncomfortable accessed March 12, 2024.

— Lisa G. Bullard, North Carolina State University • Raleigh, North Carolina, 27695

Teaching Tips (TT) are limited to 1 journal page and are peer reviewed. Submit TT through https://journals.flvc.org/cee, include TT in the title, and specify TT as the article type.