

# Thinking Outside of

# the Box

Teaching students to think outside a box is a challenging but necessary endeavor for faculty seeking to help students live in the real world of a very uncertain future. Some faculty tend to concentrate on learning to regurgitate information or answer questions that have been previously discussed, with given known answers. To challenge students to think outside the box, they need practice problems that require the application of learned content to somewhat unfamiliar contexts.

The best way I have found over 3 decades of teaching to enable students to learn to think outside the box and deal with new situations without well-defined parameters and information fully given is to offer them practice problems to do such. A substantial amount of teaching in a particular field is necessary for students to be able to intelligently attempt such problems, so such teaching (and learning) must occur early in the semester. Then, as the semester progresses, students must apply such knowledge to ever newer and more complex situations even as they learn other new and complex concepts.

**Start with holding students accountable for “in the box” knowledge early in the semester.**

Smaller-stakes assignments that reinforce course content, such as quizzes or in-class activities, tells students they have to know “the stuff,” but only so they can solve new problems with this stuff.

**Then, give students new, complex problems to solve with**

**limited parameters and direction.**

Tests, group projects, and oral exams can all be useful for ensuring that students actually have learned the material and are able to apply the concepts to at least slightly different situations without complete information. (and with some information provided but not directly inside the problem or referred to therein).

*Written by J. Austin Murphy, Oakland University. Edited and designed by Christina Moore.  
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Requiring students to learn the prerequisite knowledge via weekly quizzes is a potential strategy to enable the students to be rewarded for at least learning the material even if they have difficulty later on in applying the material to new situations. However, I teach senior and masters level courses, and so I therefore merely assign problems for the students to practice on their own (with answers given initially for them to check their work), with only two tests (a midterm and final) as well as a group project.

My own surveys of students indicated conclusively that those who crammed the day/week before the tests were wasting their time, whereas those spending the OU-suggested 2 hours per week outside of class per credit hour were scoring top grades. Students need to learn not to procrastinate, and my tests certainly penalize them for doing so. I do offer substantial extra credit for students applying themselves that is available to all but is almost a "must" for those students wishing to pass after doing nothing but cramming before the midterm/final.

It would be extraordinarily helpful to students long-term if they were so challenged in as many other courses as possible at OU. Of course, such teaching methods can meet resistance from many students and can result a dip in positive student evaluations. However, the more faculty who engage in such teaching (or other methods for teaching students to think outside the box and apply their knowledge to new situations) can make such teaching expected (and thus less unpopular, including short-term). It is indeed a way to differentiate OU from other universities that studies have indicated fail miserably in teaching students critical thinking abilities (which once upon a time was the goal of institutions of higher learning but seems to no longer be).

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