

Low-Cost/High-Impact: Success Skills Students Will Actually Use

Introduction

Arguably, the two biggest challenges facing engineering education are retention and, in general, student learning. Obviously, the two are interrelated but not necessarily simply by student performance-- generally indicated by grades. Not surprisingly, studies show there is a strong correlation between low GPA and students leaving engineering programs.[1-5] However, there is also evidence of a broad range of GPAs of graduating students.[6,7] Whether or not the primary focus of efforts to improve students' performance are geared towards retention, such efforts will also benefit all students.

While there are many factors that affect students reasoning for leaving engineering programs, here we will focus on performance, i.e. student learning. The introduction of first-year seminars, online success programs, etc., have become ubiquitous throughout engineering education. Ironically, even with the introduction of intervention methods, the overall 6-year graduation rate has remained at ~60% for the past several decades.[8] While many studies show positive results for many of these programs, the question remains: Is there more we can do, or perhaps a better question is what could we do differently.

In this work, we look at two primary areas designed to improve student success: 1) stand-alone success courses whether in person or online and 2) faculty teaching discipline related courses. By definition, success courses introduce methodologies that are designed to provide students with specific skills to navigate higher education learning, e.g., time management, reading skills, test taking. In addition, most faculty will tell her students what to do in order to do well in the class. While these skills are effective, if used, the question remains "Do students use them?"

I argue that the good news is that these efforts do *work a little* and their introduction has raised significant awareness among educators. The not-so-good news is these efforts *worked a little*. Again, this is evidenced by a 6-year graduation rate of approximately 60%. Further, I argue the reason that these efforts are not more successful is many students simply do not use the skills they are taught. While there are many reasons why students choose not to use skills that they know will improve their performance, in this workshop we will focus on a technique to increase students use of effective and efficient success skills.

Low Cost—High Impact Success Skills

In response to low retention rates and student performance, I have developed success skills specifically designed to augment curriculum and success courses and to be used by faculty teaching discipline related courses, i.e., these methodologies can be implemented anywhere. The methodologies, grounded in current neuroscience, have been tested with over 1,000 students in engineering and other disciplines. These success methodologies are termed *Low Cost—High Impact* success skills. By design, these success methodologies are low cost to both students and faculty. For students, low cost implies the methods must be very *efficient*, i.e., easy to learn and implement, rapidly implemented, and have a high rate of learning. High impact is related to *effectiveness* in learning. The crux of effectiveness is not if a particular method works (it

wouldn't be used if it didn't work) but whether students will consistently use the method. This crux element—will students use the success skill—is generally overshadowed by how well the method would work if employed and taught regardless of whether students will actually use it.

From a faculty standpoint, *low cost* consists of a) a small learning curve, b) little disruption to status quo, i.e., readily integrated into any course, c) little to no disruption of faculty's mode of teaching, and d) a universal design for implementation into any disciplines. *High impact* refers to student performance including student engagement in class as well as overall performance.

This workshop will develop the key elements of *low cost—high impact* (LC—HI) methods and their distinctive features that make them effective and efficient success skills that student will actually use. The second portion of the workshop participants will work in groups to develop new LC—HI methods or modify common success methods such that students will more readily employ them.

Workshop Format

- 1) Awareness: What is the issue we are trying to solve?
- 2) Faculty input: Current efforts to improve student learning.
 - a. The good news and the unfortunate news
- 3) Introduction of Low Cost—High Impact (LC—HI) success method.
- 4) Engagement with LC—HI: Student focus vs faculty enhancement
- 5) Understanding why these techniques are effective and efficient, and why student will use them.
- 6) Faculty engagement: Developing your own LC—HI skills (this is often modifying current success skills)
- 7) LC—HI skills implementation: Creating student accountability, incorporation into class with no loss of subject coverage.
- 8) Creating a LC—HI users' group.

Target Audience

This workshop is for educators looking to improve student learning and engagement in their classes. These proven methods are ideal for both 1) first year (success) classes and 2) faculty teaching any discipline related class.

Faculty who desire to provide student with methods to improve performance in their class will find these LC—HI methods both effective and efficient. From a faculty perspective they are intuitive, very easy to implement, require little time to introduce, create opportunity for student accountability, will *not* detract from time on topical material, and a high percentage of students will use them.

References

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