**The Success Stool: A Simple Framework for Continually Improving Teaching**

ABSTRACT

Educators often leave conferences, workshops, or other professional development sessions energized to modify their courses, but then quickly lose momentum after they start trying the technique in their classroom. To address this issue I introduce a customizable, easy-to-use, and relatively low time-cost framework that can help any instructor continually improve as an educator and incorporate more evidence-based learning strategies into their courses. The framework consists of three mutually reinforcing parts, analogous to a stool: a semester plan, a weekly self-reflection, and an accountability partner. I also discuss ways to collect and include objective data on teaching as a tool for revising and updating courses. This “success stool” framework is supported by an extensive literature on active learning and self-reflection practices.

KEYWORDS

Active learning, self-reflection, semester plan, evidence-based learning

INTRODUCTION

Research suggests that active learning strategies are superior to traditional lecturing. However, the latter still tends to dominate college classrooms due to a variety of barriers to adopting active learning techniques, including time constraints, student resistance, pressure to cover content, and sometimes simply inertia (Shadle, Marker, and Earl 2017). In this article, I introduce a simple framework instructors can use to incorporate active learning strategies into their pedagogy more effectively for a relatively low time cost. It consists of three pillars: a detailed semester plan, regular self-assessment and reflection based on classroom data, and periodic meetings with an accountability partner.

As a college instructor for nearly fifteen years who is actively involved in efforts to improve teaching practices in my discipline and beyond, a common scenario I encounter is instructors who are highly motivated to try a new active learning technique after attending a teaching conference or workshop, but whose enthusiasm often quickly wanes. This is partly due to the lag of time between when someone learns a new technique and when they first try it out in the classroom. Instructors often abandon a new strategy if it does not go well the first few times they try it, among myriad other reasons. As an economist, I also have a deep appreciation for the power of data to inform our decisions. The framework I present here also shows how data collection can be seamlessly integrated into regular reflection practice to sustain active learning teaching strategies throughout a semester.

The framework is built on several interconnected ideas. First and foremost, I assume instructors want to continually improve their teaching. While this may be not universally true, the proliferation of workshops, conferences, and journals dedicated to the scholarship of teaching and learning implies this is a safe assumption. Second, research shows that active learning techniques are generally superior to lecturing (Deslauriers 2019; Freeman et al. 2014). However, not all active learning techniques, or their implementation, are equally effective (Andrews 2011). For example, team-based learning and think-pair-share are both considered active learning techniques. The latter seems much easier to incorporate into a class, but there is a proper way to implement a think-pair-share exercise and that often requires iterative practice to master. When implementing new active learning strategies, this component of iterative practice and self-reflective assessment of effectiveness is where many instructors lose momentum. As Brownell and Tanner write, we “…often revert to our old habits when we are, inevitably, pressed for time…training alone is likely insufficient by itself to achieve lasting pedagogical change” (Brownell and Tanner 2012, 340). The framework presented in this article supports the implementation of active learning pedagogy strategies in part by encouraging frequent self-reflection and in part through ongoing discussion with colleagues. Given the many barriers to reform, any framework meant to diminish these barriers and encourage continual self-improvement needs to be easy to use and adaptable to different individuals and situations; I argue my framework fits these criteria. Finally, to be truly effective, instructors must measure what they are doing in the classroom and incorporate these measurements in their self-reflection. This framework offers instructors an easy-to-use and customizable framework for sustaining their teaching innovations throughout a semester, while also supporting the formation of effective habits such as self-reflection. In what follows, I discuss each component of the framework and various potential modifications that can be made to suit one’s needs.

ACTIVE LEARNING AND THE FRAMEWORK

It is now essentially established fact that active learning strategies are superior to lecturing. A meta-analysis of 225 studies and found students in classrooms that used more active learning strategies had significant improvements in test scores and significant declines in the probability of failing a course (Freeman et al. 2014). On the reduction in failure rates, the authors argue that active learning was so effective that if it had been “randomized controlled trials of medical interventions, they may have been stopped for benefit” (Freeman et al. 2014, 8413). Another study compared active learning sections of a course to ones that use traditional lecture and find that students perform better in the active learning sections, while perceiving they learn more in traditional sections (Deslauriers 2019). This paradox highlights the ongoing challenge of buy-in instructors face when implementing active learning strategies. This pushback from students, and sometimes impatient administrators who want happy students, presents yet another hurdle to the adoption of active learning techniques that leads many instructors to revert to their previous way of teaching.

The framework is designed to reduce the cognitive load that typically builds as class preparation, grading, and other obligations accumulate during the semester. Imagine the framework as a three-legged stool, for which missing one leg means the stool is unsteady. The first leg is developing a semester plan that is as detailed as possible, outlining both what you and your students will be doing during a given class, week, or unit. Importantly, this course plan needs to be in place prior to the semester so that it reduces cognitive strain during the semester. The second leg is a weekly self-reflection, for which you take 10-15 minutes to write notes to yourself about what went well in each class session and how you might improve the next time you teach a given topic. As I discuss in more detail below, this is an opportunity to collect and reflect on quantitative and qualitative data about your teaching on a weekly basis. By the end of the semester, you will accumulate 15-20 pages of notes for yourself, which can then be used to revise the semester plan for future courses. The third leg of the stool is to have periodic meetings with an accountability partner, during which you discuss each other’s teaching progress using the plans and reflections you created. Importantly, this person should also be interested in trying active learning in some form in their classroom and should not have an evaluative role over you.

THE SEMESTER PLAN

This is undoubtedly the most time-consuming part of the framework, but preparation time will vary based on individual needs. Creating a detailed outline for your course prior to the semester acts like a commitment device, which research supports as an effective method for progress towards one’s goals (Duckworth, Milkman, and Laibson 2018). This does not mean you must think through every interaction, experience, or contingency you could have during a semester; nonetheless, the more you teach a course, the more you will be able to refine this plan. Similarly, this does not mean you will be completely effective or finish everything you write on your plan, but it does increase the probability that you do *most* of the things on your list *most* of the time. Incremental progress plus time leads to large compounding gains. An important aspect of the semester plan is to outline what you will be doing and what your students will be doing on a regular basis (Fink 2013; Wiggins, Wiggins, and McTighe 2005). For example, a poor way to plan my Principles of Economics course would be to say that this week I will cover the chapter on unemployment, including definitions and calculations, and perhaps include a note to myself to find a current article to share with students. The temptation is to plan a course in that manner, while convincing myself that I will fill in the details as I go along. However, several weeks of the semester may pass by the time I reach this chapter and I likely have homework to grade, multiple committee meetings, multiple classes to teach, and a doctor’s appointment. When will there be time to find an article or create activities for students to participate in? Being as specific as possible before the semester starts provides more mental space and time during the semester. This approach can also improve the probability of following through with incorporating active learning strategies. For example, I may decide I want to try just-in-time teaching activities (JiTT) in the upcoming semester. To ensure I follow through on this intention, I need to be as specific as possible about when and how I will use the activity. For example, instead of setting a vague goal of using JiTT, I should identify in my semester plan which topics or weeks are most conducive to a JiTT and then at least write in my plan a general idea of what the JiTT for that topic will be. Otherwise, I’m likely to reach that point in the semester, hastily put an activity together, and then become frustrated if it does not work according to plan; or I may throw out the activity altogether if I wait too late or cannot decide on a topic. This type of outcome is bad for the students and instructor alike.

There are a few broad elements that form the core of any course, and choices about these elements should be made while keeping the learner as the focal point. There are various viewpoints and resources that explain in detail what should be included in a course but for brevity I highlight are the most salient questions to ask when designing a semester plan (Fink 2013).

1. What do you want your students to learn and/or be able to do?
2. What are you *and* the students going to do to help them learn?
3. How will you *and* the students know they have properly learned?
4. What situational factors may impact your course?

Any effective plan needs a goal, so creating learning goals is always a necessary first step; in other words, what do you want your students to learn? Covering content is not itself a proper learning goal, so it is worthwhile to consult the large literature on developing effective learning goals (Anderson and Krathwohl 2001; Bloom 1956). The second question refers to choices about content delivery, how class time is used, and what types of activities students complete throughout the semester (Biggs 1996; Wiggins, Wiggins, and McTighe 2005). The third question refers to choices about how you will assess whether students achieved the learning goals you set forth (Roediger, Agarwal, and McDaniel 2011; Rust 2002). Another good question to ask throughout this process is “why?” Why is this learning goal important? Why is this activity the best one to achieve the learning goal? Why is this form of assessment the best way to make sure the learning goal is achieved? These questions feed into the self-reflective process, which will be discussed in the next section. The final element is simple, but important, and that is making sure you are aware of important situational factors. For example, are there days when you will cancel class for conference travel? When are major holidays or other dates that will impact your students? What background do your students bring to class and how might that impact their learning? These are just a few of many important questions and incorporating these into the semester plan increases the probability of a successful semester (Fink 2013).

There are various resources available to support the development of a semester plan (see Appendix Figures 1-6 for templates and examples of semester plans and self-reflections). Barkley and Major (2018) created a handbook on *Interactive Lecturing* that recognizes classrooms are often a mixture of lecturing and active learning. They offer practical examples and suggestions of how to structure a class session, which is very useful in developing a semester plan. When thinking about the types of activities to include, the ICAP framework (Chi and Wylie 2014) helps classify activities as interactive, constructive, active, or passive, with the classification ordered from most to least effective for ensuring learning takes place. Another resource evaluates common active learning activities and classify them based on how much effort they require to implement and how effective they are based on research (McConnell et al. 2017). Importantly, the semester plan is iterative, meaning you can start out as simple as you like and refine the plan each semester you teach a course. Consequently, the second leg of the stool is vital to any efforts to incorporate more active learning strategies and continually improve as an instructor.

THE SELF-REFLECTION

A critical part of the framework is regular self-reflection which has been described reflection as “the hub of the teaching excellence wheel” (Kane, Sandretto, and Heath 2004, 303) and a strong hub is necessary to keep the teaching wheels running smoothly. A large literature supports the use of self-reflection as an important development tool (Brookfield 2017; De Rijdt et al. 2006), including helping instructors become more effective and use more evidence-based pedagogy (Burgoyne and Chuppa-Cornell 2018; Zulfikar and Mujiburrahman 2018). I recommend reflecting at least weekly, but some instructors may find they prefer to reflect after each class (Bray and Fotheringham 2022). Due to the frequency, it is important to keep this reflection brief: 10-15 minutes and a few sentences should suffice. By the end of the semester, you will have 15-20 pages of notes about each course you are teaching which can then serve as a starting point for revisions for the next semester. I propose a simple structure for this reflection:

1. How do you think the class/week went on a 1-6 scale, with 1 being awful and 6 being exceptional?
2. Rose: What is the best thing that happened during the class/week?
3. Thorn: What is the worst thing that happened during the class/week?
4. Bud: In what way(s) could you improve this class the next time you teach it?
5. (Optional) Other general comments?

The first question provides data and a quick, real-time check-in on your course. The data are subjective, but you can still compare the data over time and across courses for yourself. The next two questions should elicit brief responses of 1-3 sentences. This is a place to highlight the best/worst features of a class/week, and the fourth question allows you to expand on those points as needed. The optional question acknowledges that we often have ancillary thoughts related to our course, a particular topic, or teaching in general, and so this is a space to capture those ideas, if needed.

This is a powerful tool and should only require 10-15 minutes of time each week. Block this time on your schedule because it is important to complete while your memory is fresh. Otherwise, at the end of the semester, you may only have some vague idea about what went well or not. For example, you may remember that a certain topic was challenging for students, but you cannot quite remember in what way or think clearly on how to address it. However, while it may be a specific topic that is the root of the issue, it could simply be the way you presented the material; this is much easier to discern when the event is more recent. If you find yourself struggling to write this reflection, then ask your students what they think. What was the most confusing or interesting thing they did or learned this week? They can sometimes identify things, good and bad, that you do not necessarily notice because you are so far removed from learning the topic (Wieman 2007). You can provide students with easy participation points for completing this and it only takes a few minutes at the end of the week. In return, you receive valuable course feedback, and you will probably see an increase in course evaluations because students know that you care about their learning experience. This minor time investment each week in self-reflection will pay dividends of many hours saved the next time you teach a course. Having these reflective comments is also useful for the accountability leg of the stool.

**Quickly collect data on your course**

We now have many tools that offer more objective data to aid in self-reflection. For example, fitness devices abound that measure our heart rate, sleep, and daily exercise effort. This increased specificity allows people to be more proactive and efficient with self-improvement. Conversely, options for collecting objective data about teaching and our courses are sparse. There are several instruments that record what an instructor and/or students are doing during a given class, which can then be translated into an approximate measure of how much active learning occurs. Examples include the Practical Observation Rubric To Assess Active Learning, known as PORTAAL (Eddy, Converse, and Wenderoth 2015), and the Classroom Observation Protocol for Undergraduate STEM, known as COPUS (Smith et al. 2013). However, such instruments are limited because they must be administered by at least one observer, either in-person or via video recording. This labor-intensive process limits the number of data points you can collect. One study addresses this issue by training an algorithm, called Decibel Analysis for Research in Teaching (DART), to do what previously required a human observer. DART provides a free, convenient way to measure approximately how much active learning pedagogy is used during *each* class (Owens et al. 2017). While no measure is perfect, DART provides quick, convenient, and reliable data to an instructor on how their teaching methods translate in the classroom (see Appendix Figure 7 for example DART output and interpretation). Recent evidence suggests that instructors lecture extensively (Stains et al. 2018). Using DART, one study shows that not only do instructors lecture extensively, but they also lecture much more than they realize (Sheridan and Smith 2020). Using a simple tool like DART can provide the context necessary for more self-awareness and productive self-reflection.

THE ACCOUNTABILITY PARTNER

A final key component is an accountability partner, which is another commitment device. For example, fitness goals are often easier to achieve when you have a “workout buddy” that keeps you accountable for showing up and working hard. In this case, you need a “teaching buddy” or what some refer to as a critical friend (Costa and Kallick 1993). This is a person with whom you can share constructive criticism and work together to improve. This is directly related to self-reflection but makes it more of a community process (Kirpalani 2017). Research shows faculty are more likely to be successful in their efforts to use active learning when they have peers doing likewise (Andrews and Lemons 2015; Farrell et al. 2021; Henderson and Dancy 2007). There is also evidence that strong social networks related to teaching are necessary for an instructor’s professional growth (Benbow and Lee 2019) and for fostering a sense of inclusion and belonging, especially among underrepresented groups (Sturtevant and Wheeler 2019). Further, informal social interactions are a significant source of sharing evidence-based learning strategies, suggesting that an accountability partner can provide support for professional growth (Dancy et al. 2016). This can work one-on-one, or you can create a small group of interested individuals into something like a teaching square (Haave 2014).

Ideally, your partner(s) teaches or has taught the same course as you or is in the same department. Overlapping disciplinary expertise may improve the feedback specificity, but it is not necessary to find someone in your narrow discipline (Haave 2014). Many institutions now have a teaching and learning center that may be able provide you with an accountability partner/group or at least help connect you with other like-minded people across campus. This would also be an opportunity to create a community of practice around improving teaching (Stark and Smith 2016). Any teaching instructor will ultimately suffice, assuming you have a common goal of improving student learning. It is important to have someone to whom you are accountable for sharing your progress but to ensure open and honest communication, the person should not hold evaluative power over you. The goal is to meet with this person at least every other week to check in on each other’s progress. The weekly self-reflections should help facilitate productive feedback sessions. The meetings themselves can be as long or short as needed. This can be a transactional relationship whereby you give and receive feedback in a brief 15-minute meeting. Occasionally, you may want an hour-long coffeeshop discussion in which you deconstruct part of your class and rebuild it. The meetings are mostly about feedback, but the social aspect is also beneficial (Benbow, Lee, and Hora 2021). As with self-reflection, protect this time with an accountability partner on your schedule. Just as we expect our students to study regularly outside of class, we also need to frequently reflect on our approach, not just one time at the beginning/end of a semester. The latter is akin to cramming for an exam and is a recipe for slow, unsatisfying progress. This might be the most challenging part of the framework because you are depending on another person, and it may be difficult to find someone willing to participate consistently. This will depend partly on departmental, school, and/or institutional culture. Remember, as part of your semester plan you need to take note of situational factors that can affect your teaching – culture is one of those factors. If your institution does not highly value teaching, then this can be more challenging. The good news is this person does not have to be at your institution. While it may be preferable to make connections at your institution and have these interactions in person, technology allows you to meet with anyone in your extended network virtually. Therefore, choosing an accountability partner also represents an opportunity for extending one’s professional network.

CONCLUSION

The three legs of the stool are mutually reinforcing. Developing the semester plan provides something to reflect on during the semester and goals against which you can measure progress. It also helps keep a class on track and reduces an instructor’s cognitive load during the semester. Self-reflection throughout the semester helps sustain momentum and provides significant details that can improve the next iteration of the semester plan. Likewise, an accountability partner provides a sounding board for the other legs of the stool and ensures you are making progress toward your goals. This is a mutually reinforcing way to learn and develop as an instructor.

Instructors often refer to having a class “prepped” in the sense that they have taught it before or know what/how they are going to teach it. Their course is essentially on autopilot, and they can step into the classroom without much preparation and deliver the content. Cognitive load is lower because many of the fixed costs have already been incurred, such as acquiring content knowledge and creating syllabi. The potential problem with this is that the familiarity and comfortability associated with delivering the content can lead to a course that is not properly centered on students’ learning. This can also lead to inertia with regards to instructor development. If you are not continually and critically examining your pedagogy, then you are not being the best version of yourself. This may lead to less learning gains for students and often disproportionately hurts underrepresented students the most, among other undesirable outcomes (Theobald et al. 2020). Adopting the framework presented here improves adaptability and encourages an instructor to continually improve, to the ultimate benefit student learning. As an added benefit, this framework is complementary to recent work that presents a new rubric for assessing teaching effectiveness, with particular attention given to self-reflection and a self-improvement plan (Simonson, Earl, and Frary 2022). The framework I present here helps an instructor meet those criteria, while also encouraging progress towards other items assessed in the rubric, such as evidence-based teaching practices. Importantly, an instructor can adopt this framework at any stage in their development and expand upon it in a way that works for them and their context.

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APPENDIX

**Figure 1: Semester Plan Template**



**Figure 2: Semester Plan Example**

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**Figure 3: Weekly Semester Plan Template**

|  |  |  |
| --- | --- | --- |
| **Daily/Weekly Learning Outcomes: DATE** | | |
| **Segment** | **Time est** | **Activities and Tasks** |
| **Pre-class work** | Varies | Pre-class readings, assignments, or other activities students need to complete; this space can also serve as a reminder to the instructor about communicating expectations and deadlines to students. |
| **1** | 10 min |  |
| **2** | 15 min |  |
| **3** | 10 min |  |
| **4** | 15 min |  |
| **5** | 10 min |  |

**Figure 4: Weekly Semester Plan Example**



**Figure 5: Weekly Self-Reflection Template**



**Figure 6: Weekly Self-Reflection Example**



**Figure 7: DART Example**

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