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Recommended Citation

Twede, Jason, "Chapter 16- If at First You Don't Succeed: Promoting a Growth Mindset by Quelling Student Fear of Failure" (2023). *Habits of Mind*. Paper 18.

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Chapter 16

If at First You Don't Succeed: Promoting a Growth Mindset by Quelling Student Fear of Failure

Jason Twede

In response to a colleague's dismay over failing to successfully design their invention, Thomas Edison famously replied that their efforts were not a failure, but an opportunity to learn. Edison said:

I recall that after we had conducted thousands of experiments on a certain project without solving the problem, one of my associates, after we had conducted the crowning experiment and it had proved a failure, expressed discouragement and disgust over our having failed "to find out anything." I cheerily assured him that we *had* learned something. For we had learned for a certainty that the thing couldn't be done that way, and that we would have to try some other way. We sometimes learn a lot from our failures if we have put into the effort the best thought and work we are capable of. (Forbes, 1921)

What Edison understood was the role that failure played in his ultimate success. Failure as a means to increase understanding is a powerful tool. Just as Edison harnessed failure to be a successful inventor, students can learn from failure to be successful learners. As teachers, we can facilitate this process through course design. By providing examples from two Criminal Justice courses, this chapter focuses on how students can learn from their failures.

Failure and the Student Mindset

How a student views failure can have an impact on their ability to learn. In 2016, Dweck described what she referred to as a fixed mindset and a growth mindset. Those with a fixed mindset believe their abilities—such as intelligence—are unchangeable. When students have this mindset, failure on an assignment may be viewed as a referendum on their abilities as opposed to a natural opportunity to learn from their mistakes. This can lower student self-esteem, affecting their ability to learn from future assignments (see Brooks & Goldstein, 2008). The fear of failure itself may also lead students to engage in self-handicapping behavior to protect their self-esteem, hindering their ability to learn (see Bartels & Herman, 2011; Elliot & Church, 2003).

Conversely, students with a growth mindset believe their abilities can be developed and improved. When students have this mindset, failure on an assignment is not a referendum on their abilities but rather an opportunity to see where they can grow. Persisting in the face of failure is one of the Habits of Mind that Costa and Kallick (2000) note as important not only in the context of classroom education but also in the development of a culture of learning within society at large (p. xiv). Indeed, eliminating the fear of failure can help students succeed in their courses as well as help them in their lives following graduation (see Bishop, 2018).

Students with a growth mindset can harness failure and use it to further their learning. As teachers, we can help students foster this growth mindset—to see failure as the starting place for learning and not the final word on their ability to learn. According to Dweck (2016), simply learning about a growth mindset can help students shift away from a fixed mindset. This is a straightforward enough thing to do. However, when we are teaching a full course-worth of material, finding time to squeeze in a lesson on developing a growth mindset may be difficult.

While we may not have as much time to devote to explaining growth mindset as we might hope, a brief explanation of it can still be beneficial for students.

While knowledge of a growth mindset is important for students to abandon a fixed mindset, it is equally important to incorporate structures in our courses that support and foster a growth mindset (see Yeager et al., 2022). In addition to discussing the growth mindset with students, structuring our assignments to mirror what a growth mindset looks like can reinforce a growth mindset in students. Such efforts to foster a growth mindset might include: assignments that students can resubmit for an improved grade; papers with multiple drafts where students are able to implement feedback along the way; and practice tests before a midterm or final exam.

By providing students multiple attempts to master content and concepts without fear of those initial attempts permanently impacting their grade for the course, students can engage with the assignments in a less stressful environment, which in turn can lead to improved learning (Kenney & Bailey, 2021). Additionally, this enables our students to learn how to take responsible risks—another Habit of Mind important for student success both inside and outside of the classroom (Costa & Kallick, 2000). As the proverb goes, “Nothing ventured, nothing gained.” For students to gain understanding, they must be willing to risk being wrong. Unfortunately, the fear of being wrong holds some students back from taking risks on assignments (Costa & Kallick, 2000). By allowing students to be wrong up front without permanently impacting their grade, the risk of being wrong becomes less risky. This encourages students to risk being wrong and reap the benefits of learning that comes from that process.

We can also scaffold our assignments to enable students to learn through failure. Scaffolding is the process of assisting a student to “solve a problem, carry out a task or achieve a goal which would be beyond [their] unassisted efforts” (Wood et al., 1976, p. 90). We can scaffold our assignments to help students work on easier, more manageable tasks first and then move onto more complex tasks once they have mastered the easier ones. When scaffolding assignments, we can use Bloom’s Taxonomy to determine what assignments should precede others. Bloom’s Taxonomy (1956), which was revised in 2001, is a hierarchy of learning outcomes teachers may seek to have their students achieve, starting with lower level cognitive goals such as memorization and ending with higher level cognitive goals like evaluation and creation (see Anderson & Krathwohl, 2001). By focusing early assignments on low-level cognitive goals and later assignments on high-level cognitive goals, we can help students work through smaller, more manageable failures early in the learning process. This can lead to more effective student learning over the course of a semester (see Marjanovic, 2012; Venter, 2006). This also helps students learn how to apply past knowledge to new situations—yet another Habit of Mind (Costa & Kallick, 2000).

Determining Desired Outcomes

When designing an assignment that enables students to learn through failure, we must first determine what cognitive goal(s) we want students to achieve with the assignment. If our goal is to have students remember basic facts concerning the topic they are learning about, our assignment design might be simple. For example, allowing students to retake a quiz as many times as needed until they get a perfect score can accomplish this. There can be hesitancy to use such an assignment, as it arguably just tests a student’s ability to memorize the correct answers from their first time taking the quiz. This is likely true. However, if the aim of our assignment is to facilitate student remembering, where is the problem in having students retake quizzes? Students use their failure—answering the question wrong on the first attempt—to facilitate remembering the content.

By contrast, if we want students to achieve a higher level cognitive goal (such as application of the concepts learned in class), allowing them to retake an assignment with the same questions is not going to be effective in the same way it would be if we were simply testing their ability to remember. An example of this can be seen with elementary school math. When students learn division, they first memorize basic math facts (e.g., $8 \div 4 = 2$, $9 \div 3 = 3$). The goal at this stage is for students to remember these basic math facts, so having them repeat the same questions makes sense and is an effective way to help them do this. Once students move onto long division, however, repeating the same questions would not be effective. For example, if we ask a student to solve $432 \div 9$, we are less concerned that they know the answer is 48 and more concerned that they know how to figure out that the answer is 48. That is why we ask students to show their work. Because we are focused on application at this point, giving a student this same math problem to answer if they get it wrong the first time would not be effective. They might provide the correct answer of 48, but when they do this, we do not know if it is because the student understands the process of long division or if they simply memorized the answer after getting it wrong the first time. If we give them a new problem, however, such as $154 \div 7$, if they give the correct answer, we know it was not because they memorized the answer. It is evidence they understand how to apply the concepts of long division.

In the example above, not only are individual assignments tailored to the cognitive goal we want students to achieve but the assignments are scaffolded to allow students to achieve simpler cognitive goals first with initial assignments and to then move on to higher level cognitive goals with subsequent assignments. This same framework can be used when harnessing failure with college-level coursework.

Law-based Examples

I teach two law-based courses within the Criminal Justice program at Utah State University (USU)—*Criminal Law* and *Laws of Evidence*. These are both lower level courses where students learn legal principles and are expected to apply those principles to real-world situations. I structure the assignments in these courses to enable students to learn from failure.

Each week, I provide students with two assignments: a quiz and a scenario assignment. The quiz is between five and ten questions and focuses on the cognitive goal of remembering. Students can take the quiz as many times as they wish during the week. They earn the highest score they achieve on the quiz. Like the math facts mentioned above, the goal here is for students to memorize the facts I am quizzing them on.

For example, one of the topics covered in my *Laws of Evidence* course is the rules governing admissibility of confessions in criminal trials. During the week we cover this topic, the following questions are included in the weekly quiz:

1. An officer does not need to read a suspect their Miranda warnings if they are not in custody.
 - a. True
 - b. False
2. When determining if someone is in custody, we generally look at whether they are _____.
 - a. told by the officer they are in custody
 - b. free to leave
 - c. under arrest
 - d. read their Miranda warnings

These are two basic concepts that form the backbone of analyzing the admissibility of confessions in criminal cases. First, officers only need to read someone Miranda warnings (“You have the right to remain silent, anything you say can and will be used against you,” etc.) if they are in police custody. Second, to determine if someone is in police custody, we assess whether that person was free to leave the encounter with the police. I want students to memorize these two concepts before they attempt to apply them.

In the scenario assignments, I offer students real-world scenarios where they are asked to apply the legal concepts we are learning about that week to those scenarios. Like the quizzes, students are given multiple attempts to apply the concepts to scenarios. These assignments differ from the quizzes, however, in that when students retry the assignment, the questions they are provided with are different from the ones they answered during their first attempt.

Below is an example of a question students encounter on their first attempt at a scenario assignment, also dealing with the admissibility of confessions:

Hank is a suspect in the murder of Violet. Det. Murray is unable to find Hank. Eventually, he receives a phone call from Hank. Hank refuses to give his location to Det. Murray, but he agrees to talk to Det. Murray via Skype. Before questioning Hank via Skype, Det. Murray does not read Hank his Miranda rights. Hank confesses to murdering Violet. Will Hank’s confession be admissible against him in a trial for the murder of Violet? Explain your answer.

This question requires students to apply the concepts they were asked about in the quiz. As we learned, Miranda warnings only have to be read to a suspect if they are in custody, and someone is generally deemed to be in custody if they are not free to leave the encounter with the law enforcement officer. In this scenario, the detective is communicating with Hank via the Internet and has no idea where Hank is located. Hank is free to leave this encounter with the detective at any time by simply turning off his computer. Because he is free to leave the encounter, Hank is not in custody and thus the detective was not required to read him his Miranda warnings. Accordingly, the confession will be admissible against Hank at trial.

As was mentioned, if students answer this question incorrectly, they are provided a new scenario to analyze. While the scenario is different, the legal principles students are asked to apply are the same. This is similar to the long division questions noted above—because we are focused on application, we want to provide a new question to ensure the student does not simply memorize the correct answer from their incorrect attempt.

Below is an example of an additional scenario students would encounter on their second attempt at the assignment:

Molly has been stopped by the police for questioning. When Molly attempts to end the questioning and leave, the police officer tells her to “sit down.” Is the officer required to read Miranda warnings to Molly before questioning her at this point? Explain your answer.

This again requires students to apply the two concepts they were asked about in the quiz. When students answer a new question like this, not only are they applying the concepts learned from the quizzes to a new scenario but they are also able to draw upon what they learned from answering the initial question incorrectly. For students to be able to effectively learn from answering the initial question incorrectly, it is important to provide students with feedback on why their answer to the initial question was incorrect—something I do in my classes. In this

scenario, Molly would not be free to leave because the officer did not permit her to leave when she tried to. Thus, the officer is required to read her Miranda warnings if he intends to question her.

Evidence of Effectiveness

This approach to assignment design helps students master course content. In Figure 16.1, we can see that on average, students performed better on their second and third attempts at assignments that required them to apply the concepts we learned in class. On average, if students used both the second and third opportunities to take an assignment, they improved their score a collective 27%—nearly three full letter grades.

Figure 16.1

Student Score Improvement on Application Assignments by Percentage

Improvement between 1st & 2nd attempt	Improvement between 2nd & 3rd attempt
16%	11%

Additionally, the number of students who were able to get a perfect score on the assignments—to truly master the material—was greater in subsequent attempts of the assignment than on the original attempt. As shown in Figure 16.2, the percentage of students receiving a perfect score on the third attempt of the assignment does decrease from the second attempt but is still higher than the first attempt.

Figure 16.2

Students Receiving Perfect Score by Percentage

1st attempt	2nd attempt	3rd attempt
38%	46%	41%

While using these subsequent attempts on application-based assignments appears to increase students' ability to apply concepts (not to mention improve their grade), not all students take advantage of the opportunity to try the assignment again. As we can see in Figure 16.3, roughly one-third of students take advantage of these subsequent attempts. It is likely that some students do not take advantage of these attempts because they score close enough to perfect (i.e., they only miss one or two points) on an assignment and are satisfied with their grade. While not every student takes advantage of these assignments, a sizeable number do, resulting in increased learning of course concepts.

Figure 16.3

Students Using Subsequent Attempts by Percentage

2nd attempt	3rd attempt
33%	38%

Conclusion

Teachers have the ability to help students develop a growth mindset and learn how to persist through failure. This not only helps students excel in their coursework but also sets them up to thrive outside the classroom as well.

One way to help students harness failure to develop higher level cognitive abilities is the use of assignments that students can retake but that employ different questions on students' subsequent attempts. Designing multiple versions of our assignments and grading assignments multiple times can certainly be time consuming. However, the time investment does appear to benefit student learning. How many attempts we give students—and correspondingly, how many different versions of an assignment we must design—is certainly variable. As we can see in Figures 16.1 and 16.2, it appears that there are diminishing returns the more attempts we allow students on an assignment—the grade improvement and number of students receiving perfect scores was higher for second attempts than they were for third attempts of the assignment. It is up to us to decide how many attempts is optimal for our individual classes. Whether we allow students one attempt to retake an assignment or multiple, this method of assignment design will help students develop a growth mindset and learn through their failure.

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