Two Strikes and Then You Win

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Abstract When students fail a course repeatedly they are required to obtain special permission to take it again. This gives rise to an opportunity to snatch success from the jaws of failure, and not only for coursework.

In my time as math department chair I have seen many students in the difficult position of having failed a course twice. Typically, this is a required course and, to take it for the third time, special permission is needed. In particular, students are asked for a letter of support from the department. This provides an opportunity to snatch success from the jaws of failure.

On good days, two-strikes situations, and others like them, give rise to an energizing thought. Our urban public university has limited resources on many grounds (and there is irony in the use of the word *grounds*). There is much that we would like to provide to our students, that high-ranked, high-endowment universities can provide, which we cannot, because of resource limitations. However, when a student walks in with a two-strikes situation, I have the opportunity

and challenge to level the playing field, providing the student with response and support as substantial and effective as they would get in the top universities in the world. (Another such challenge and opportunity arises every time I walk into my classroom.)

Over the years I have developed a conversational frame for a first meeting with a student in a two-strike situation. I first ask them to describe their circumstances and, in particular, to articulate from their own perspective why they were not successful in the past; once that's done I ask why they think they will be successful next time. In some cases, lack of success is attributed to a teacher. In such cases I may interject a recommendation for a very short reading, most often Steven Zucker's *Telling the Truth* (Commentary, Notices of the American Mathematical Society, 2003). The point there is that most of the learning responsibility in a college (math) class rests with the student, and most of the learning takes place outside the classroom. I try to make it clear that this is general, inspiring reading, and not meant as an easy fix solution to the current problem. If students utter phrases such as "I don't need any more math after this..." or "this course is holding me back from..." or "I was always bad at math", I invoke George Orwell's book *1984*, and in particular, the concept of *Newspeak*. About half the students recognize the book, and far fewer *Newspeak*. I suggest that students rephrase their narrative with "I am not required to take any additional math courses for my program, though I may want to, in order to strengthen my background", "Completing this class will round out my program. It is required for my degree, for a very good reason, I'm sure" and, "Until now I've had a bad experience with math classes; however, I am hopeful that this will change in the future; I may even become good at math, and think of math as one of my strengths". I try not to be at all prescriptive in suggesting these variations; I don't post or print them. And the suggestions vary a bit from meeting to meeting. Invariably, these guidelines are met without resistance, and quite frequently with a smile. It is also easier and more succinct to deliver the phrases verbally.

After this point in the meeting I bring up the *homework assignment*. In order to get a letter of support from me, I ask students to write me a letter, outlining a path to increased chances for success. I announce that for this they will need instructions. I strongly encourage them to take notes by hand, and strongly discourage them from using a cell phone or a laptop. I also emphasize that I am providing instructions and not dictating. I ask them to use their own words and, at the same time, to produce high quality writing—good enough to be an English paper. I also ask for the letter to be sent as a plain text message, with no attachments, no graphics, colors or fonts. This is for the purpose of emphasizing the words and phrases. (It also has some logistic advantages.) I instilled this digitally minimalist format long before I read the words of Haruki Murakami, quoted below; perhaps I was influenced backwards in time:

[Writing in a foreign language] led me to discover that I could express my thoughts and feelings with a limited set of words and grammatical structures, as long as I combined them effectively and linked them together in a skillful manner.

Haruki Murakami
author's introduction, Wind/Pinball

While no one resists this formatting requirement during the meeting, surprisingly often the

letters arrive as attachments or in some other not-so-compliant form. This point is a potential contributor to course success. In math classes, and probably in all other classes, understanding and following instructions is important. Sometimes one can deviate from instructions; however, when this is done, there should be good rationale, clearly articulated. Thus I am open to resistance to the required delivery format, and willing to negotiate alternatives, provided good rationale is given by the student.

Now we are ready to detail the structure of the student letter. I ask that the letter begin with a request, e.g., “I am writing to request a letter of support for taking Math XYZ in the fall semester of the year 1984”. This seems to contradict the “write in your own words—this is not a dictation” dictum, yet no one seems to object. Next I ask that they write when and with whom they took the class before. While everyone remembers when, surprisingly many do not remember with whom. I ask them to look up the information; detailed recall may help with the next section.

I ask students to write about why they believe they did not succeed. Were there lessons from the first round that could be applied to the second? Why were these not sufficient for success? Then I ask for reforms, initiatives, all possible new ideas that can be brought to help improve chances for success. I offer suggestions, such as taking advantage of campus resources, including tutoring and office hours, study groups, etc. Some students with disabilities acknowledge that special resources are available to them but have not been tapped yet, or learn of these for the first time. (It should happen sooner.) I encourage students to think of additional ideas on their own and they often mention friends and relatives that can help. Frequently, students volunteer ideas emanating from entirely different directions (job, family, commuting), and these signal that the conversation is headed for success.

At this point I request a simple plan: specify specific days and hours to be reserved for study for this class. So “two hours on Tuesday” does not qualify while “Tuesdays, 2:30 to 4:30” does. This is partly motivated by the principle that more course time should be devoted outside of class than in class. (The standard heuristic is two to three hours outside for every hour in class.) Students will often acknowledge that in previous classes they allocated considerably less study time than recommended; occasionally they report spending more time. In all cases I bring out the point that the length of time spent is not the only factor. It has to be time well spent, and this is one place where the instructor can give particularly valuable guidance. Some students say that their next semester’s study and work schedule is not sufficiently set yet to make a specific schedule. Then I suggest that they take their best guess and commit to later modifications, if needed, with *no net loss*, alluding to the environmental policy on wetlands (if you drain a wetland to build a mall, you have to introduce a new wetland, with no net loss). Interestingly, this portion of the student letter frequently leads to the need for a rewrite. It too requires understanding instructions and paying attention to details, both important practices in math and beyond. Sometimes students write far more than is requested. I have received dog-walking schedules.

In going beyond the minimum scheduling requirement, shortcomings in writing skills emerge. Sometimes, weaknesses in foreign speakers’ usage appears (“grab some lunch”), and sometimes in native speakers (“reason being as”). This is an opportunity to point out that good mathematics goes hand in hand with good English, together with a link to the Writing Center.

Some may wonder: what if a student simply *makes up* a schedule which they have no intention of keeping? Will I send an agent to check? [No.] I believe, intuitively, that this rarely happens. Student remarks and questions about the schedule suggest that they do intend to keep to the schedule. Why is it important to be so specific? Modern research indicates that making choices is a taxing activity. Having to decide each week which days and hours one will allocate to study is consuming. It is said that a former president had his staff select his attire each day, so that he could save his decision energy for more vital tasks. We parallel this thought here.

What about the learning value of a fixed study schedule? There may be weaknesses here. Current learning research (*How We Learn: The Surprising Truth About When, Where, and Why It Happens* by Benedict Carey) indicates, for instance, that there is value to varying our study venue. So why not the time? In practice, I think that the time will vary, even with the students' best intention to maintain the schedule. That's not a cause for concern; there is value in the exercise of building the schedule.

The next item is *dividends*—what are all the good things that emanate from success in this class? Often this requires a mini discussion of the *dividend* concept (except maybe for Finance majors). There is an opportunity for a mini historical retrospective—the post Soviet Union *peace dividend*, with irony and all. Students are to go beyond grades and graduation requirements in articulating what comes with course success, e.g., readiness for further learning, greater strength in a future workplace (not having to outsource mathematics), etc. The hope is that envisioning dividends will increase buy-in for the value of the course, and thereby drive increased success.

Together with dividends of success, one must also consider negative-dividends. What does the world look like after a third non-success? We hope that this is only a thought experiment. Yet it could have greater impact than the envisioning of positive dividends. Research tells that the magnitude of the sense of loss emanating from losing a \$20 bill while hiking in the woods is several times greater than the corresponding magnitude of gain emanating from finding such a bill. We can try to leverage this asymmetry for course success.

The next item to consider is *Priorities and Responsibilities*. During the term when the course is to be repeated, what are the student's responsibilities and priorities, and where does this course fit in? Here there is the tendency for students to provide excess specificity. Sometimes I cite as an example a student that takes his cousin to dialysis treatment three days per week. I don't need to know that it's a cousin and it's about dialysis. Simply declaring fifteen hours of family responsibility suffices. There is no expectation that this course be the top priority—perhaps a cousin's life is more important. The priority should be relatively high, though, given the history of repeated trouble. And the totality of responsibilities is also important. Is it right sized? Is it realistic to expect to meet all the responsibilities? Has the student considered these?

We are nearing the end of the instructions. The final consideration is *obstacles*—what obstacles might come in the way of success, and what can be done now to help circumvent these obstacles should they arise. For non-native speakers I often find the need to digress on the word *obstacles*. Sometimes I cite the example of a student with variable work hours. On occasion the boss offers the opportunity to work 80 hours in one week and earn lots of money. But then school work suffers. This student made a prior commitment to work a maximum of 25 hours per week during

the term when the course will be repeated. With the commitment in place it is much easier to resist the 80 hour work week offer: “Thanks for the opportunity. I appreciate it. But I made a commitment...” Without, it’s harder to resist. This worked for one student. Another may have different anticipated obstacles and different strategies for circumventing them.

This concludes the instructions. In written form they appear rather longwinded. Yet verbal delivery is rapid, typically taking just fifteen minutes. Moreover, most good letters run less than one page in length. In reviewing the student response I don’t fuss over each and every item, as long as some items are strong and no red flags are detected. Red flags may consist of an extensively poor writing style, blaming instructors (or their affect), dismissing the value of the subject matter, and not understanding or not following instructions. In nearly all cases, feedback and discussion is followed by an adequate revision.

In the instructions one will find influences from multiple recent trends in education, e.g., the mindset movement and positive psychology (*contrapositive psychology* too). I do not provide copies of these instructions, emphasizing the conversation (so, if you are reading this, don’t tell). I don’t deliver the instructions from a script, and often vary the delivery, guided by student reactions and responses during the conversation.

Outcome statistics are not available. I occasionally receive reports of significant improvement in grades, sometimes to an A. I have never received a negative report (“the appeal process did not help—I did just as badly the third time around”). Recently, and for the first time, I received a followup note that mentions the letter specifically:

Dear Professor,

Last [...] you supported my request to retake Math XYZ for the third time. I received my final grade the other day and was thrilled to learn that I had earned a [high grade]... I found that the letter of appeal that I wrote ... helped tremendously throughout the semester!

One may wonder about the efficiency of this process. Two-strike students get more attention than those that are initially more successful. Is this a good allocation of resources? I hope that one student’s improvement may influence others. (Honors programs are motivated, in part, by similar considerations.) Also, the extent of improvement for two-strikers is potentially vast.

In any event, one can be hopeful that this process will get better every year, as we learn more about learning, and as we gain new insights from each participating student.