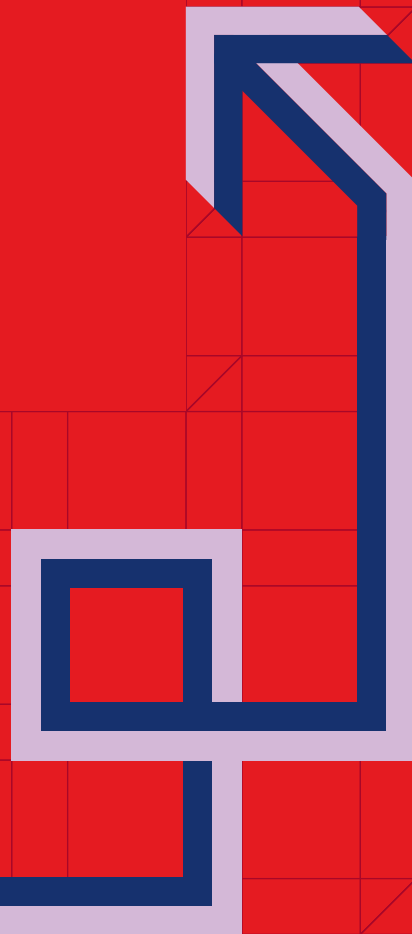


Detecting and Intervening When Students Procrastinate

New Data for Instructors

McGraw Hill White Paper Series

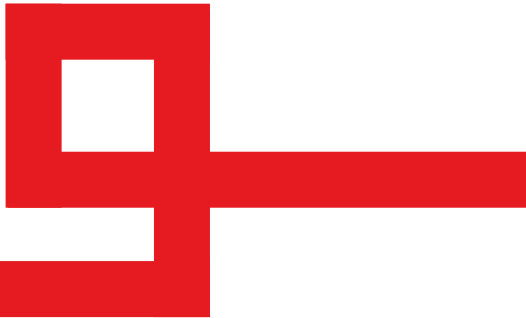




Introduction

Procrastination is a common behavior that all humans engage in at one point or another. It is delaying something that we know needs to get done. A study conducted by the University of Pennsylvania and McGraw Hill provides alarming evidence that students who start assignments late will receive a poor grade and be at risk for failing a course. A procrastinating student is an important opportunity for a college instructor to support that student. By identifying early signs of procrastination behavior, and by taking actions to help students work more effectively, one helps to reduce their chances of receiving a poor assignment or course grade. The reality is this—not taking action to help a procrastinating student could have dire consequences for their performance.

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The study “A Procrastination Index for Online Learning Based on Assignment Start Time” and its findings by the University of Pennsylvania and McGraw Hill were published at the 2020 Educational Data Mining conference and offers compelling data that college students who demonstrate procrastination behaviors generally receive worse course grades. Concerningly, students who habitually delay starting assignments have 21 times the risk of failing their courses than students who start on time.

College students in courses who demonstrate procrastination behaviors generally receive worse course grades.

Spotting the Warning Signs

The first step in helping students is spotting the signs of procrastination, which can be broadly defined as postponing a (course) activity under their control to the last possible minute, or not performing it at all. What do the warning signs look like in your class? Students who habitually fail to submit an assignment, turn an assignment in late, delay even a simple assignment like a discussion board post, or delay buying textbooks, are possible examples.

Many factors are associated with students’ decisions to procrastinate, such as an inability to regulate themselves, or feelings of anxiety or depression that interfere with academic performance. Nonetheless, this behavior doesn’t have to mean failing the course or receiving poor grades. Or, that they’re beyond help from their instructor.

How can instructors spot the warning signs of procrastination? The study’s outcomes answer this question by mapping a correlation between when students start assignments and course performance.





While it's well studied and understood that procrastination and academic performance are closely linked, and that students who procrastinate generally receive worse course grades, most published studies use retrospective data from self-reporting on whether a student hands in an assignment late or the amount of time they spent to complete an assignment. Researchers with the University of Pennsylvania and McGraw Hill took a different approach.

What's unique about this study is that it hones in on procrastination as a student behavior and uses it to predict course performance. They mapped empirical behavior data for when students actually started an assignment within the learning system, and the grades they received. Data was collected from online courses using McGraw Hill Connect®, a digital course management system

employed in more than 6,000 higher education institutions in the United States, comprising more than 2 million assignment submissions, from more than 100,000 students in approximately 4,000 courses.

Researchers analyzed when students started their assignments as compared to other students within the same course and compared it with their assignment and course grades. Using this data, the researchers developed a Learner Procrastination Index (PI), an entirely new way to estimate students' tendency to procrastinate. In fact, using assignment start times, PI can predict student grades and can help instructors identify those who may perform poorly in the course. The PI data presents concrete warning signs of what can happen when students delay starting an assignment, and an opportunity for college instructors to intervene while teaching the course to help students before it's too late.

PI can predict student grades fairly accurately and can help instructors identify those who may perform poorly in the course.

A New Way to Assess Procrastination and Performance

Can assignment procrastination be assessed given that the time students need to complete an assignment varies from task to task and student to student? Yes, and here's how: by assuming that each assignment has a threshold start time, after which students cannot reasonably be expected to perform well, the researchers looked at the average of class assignment scores relative to when students started an assignment.

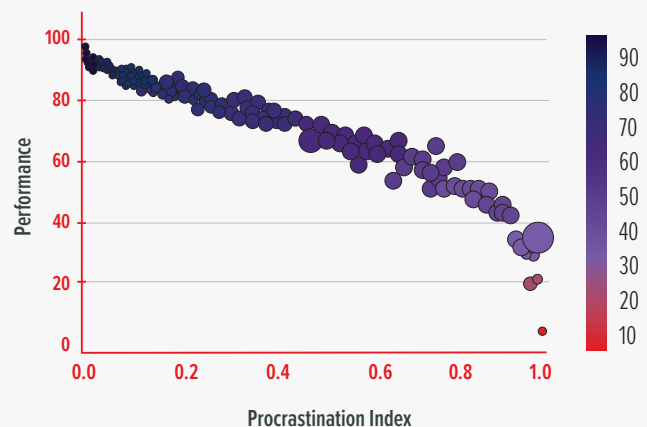
They found that the threshold time for a student to avoid a poor performance was when 75 percent of them had started an assignment. This meant that the last 25% of the students to start an assignment did relatively worse than the first 75%.

Regarding course grades (Figure 1), those who procrastinate less than 5 percent of the time average an "A" grade, and students who procrastinate under 20% of the time average "B" or better. There is a steady drop off beyond that. By using this measurement to detect and quantify procrastination, this project found more than double the effect seen when students are asked if they procrastinate. It seems that students do not realize that they are procrastinating. And by detecting this behavior in the data rather than using surveys, we can help students who may not even know that they are procrastinating.

Figure 1:

The relationship between procrastination and course grades.

The average of the final grade on the course (Y axis) and the PI for 60 when students started the assignment (X axis). The average course grade declines as the PI increases. Students who procrastinate under half the time receive more Bs and As than Cs, with a relatively steep drop-off in grade around a PI of 50 percent. Students who procrastinate 95 percent of the time tend to obtain a D or F.





The challenges of procrastination, and some paths forward, are illustrated in a 2018 to 2019 study by McGraw Hill and the College of Healthcare Professions (CHCP) in Texas, a higher education institution offering healthcare-related programs designed to help adults quickly start a new job in healthcare, while building to a degree. The study evaluated 4,500 undergraduate students over several eight-week terms in hybrid and online teaching settings to see the impact of different interventions for procrastination and the impact on year-over-year grades.

McGraw Hill partnered with CHCP's dedicated group of counselors who call students weekly to make sure they stay on track with their coursework. Through this partnership, they employed several interventional techniques aimed at deterring student procrastination, including:

1. Calling students in the second and third weeks of the course who had not submitted all assignments on time.
2. Administering a procrastination survey in the third week and calling students with a high PI score in week five to assist with their progress.
3. Administering a mini survey in the first week to check when students started assignments and following up with reminder texts to all students in the second and third week to prompt them to stay on schedule with working on assignments.
4. Sending weekly text messages to all students to remind them to avoid assignment procrastination.
5. Developing and sending an instructor video covering procrastination with slides via the learning management system.

The year-over-year impact of these interventions in the study was startling. While students with a high PI saw no improvement in grades year over year, the rest of the students saw marked, overall improvement in their grades from 2018 to 2019, suggesting that they benefited from the interventions. Importantly, there were positive changes in behavior even for students with a high PI when the students were called or texted. Procrastination is hard to address. An intervention that seems to benefit other students does little to help students who tend to procrastinate habitually. The CHCP/McGraw Hill study results indicate that implementing more instructor touch points throughout the semester might help students perform better. These results also indicate that more work must be done overall to help those with a high PI from procrastinating!



Instructor Strategies for Improving Student Performance

Instructors, remind students not to delay starting assignments! Make it a point to detect the early signs of procrastination and intervene with students who are lagging. If you're using online learning management systems like Connect, you can use the system to look at patterns of student activity and engagement with the course that can help identify which students may need a little extra assistance. Additionally, by taking some extra teaching steps and employing a few simple strategies, you can likely help the procrastinators before it becomes too late:

- **Intervene early:** Intervene with struggling students before things go too far and grades suffer. Meet and work with them to develop a plan to successfully complete assignments and the course. Pay attention to early warning signs of struggle: late assignments, poor assignment quality, lack of communication, not responding to feedback, and displaying apathy. It also means being proactive and reaching out to students showing these signs and asking if and when, they started an assignment.
- **Use the data:** The fact is, many students may not even know the unintended consequences of procrastination. Kick off the class with a short lecture or video presentation on procrastination. Share the PI data and its implications for assignment start times, grades, and course failure. Let them know that while procrastination is a natural behavior, those not staying on top of when they start an assignment have a greater likelihood of receiving a poor score and course grade.
- **Stay in touch:** Ask students to notify you via email when they start an assignment. When about 75 percent of students have emailed you, reach out to the ones you haven't heard from and encourage them to get started.
- **Measure progress:** Administer mini surveys to students to assess their progress on assignments and get involved with those who are not tracking to deadlines, or the assignment start threshold.
- **Monitor:** Actively monitor student assignment start times in the online learning management system. When about 75 percent of them have started an assignment, contact the remaining 25 percent to get them started.
- **Nudge and repeat:** "Nudge" them to start assignments with plenty of time before the due date. Repeat this message throughout the course, weaving it into weekly emails, discussion posts, or any time you're communicating with students. Use the carrot and not the stick and nudge them with extra credit for early assignment submissions.

- **Manage time:** Integrate and lecture on-time management strategies in the first class. Listen to their ideas, provide feedback, and be clear that an important strategy is starting assignments early enough to do well on them.
- **Practice reflection:** Early in the course, ask students to write a self-reflection paper or email on how to avoid procrastination in this course and in their college career. Have them be specific in identifying their habits and recommending specific solutions.
- **Text and call:** Send a group text to the class reminding them to start an assignment. Or give them a call if you think they are starting an assignment late—it might just help to light a fire and get them moving on an assignment. One-on-one conversations might also reveal a student who needs assistance and an opportunity for you to help get them on the right track.
- **Make a timeline:** Ask students to turn in a short project timeline outlining when they plan to start an assignment, meet deliverable milestones, and their strategies for staying on track. Review assignment grades and contact students who received less than a “B+” and discuss how they did the assignment work relative to their timeline. Provide helpful feedback for the next assignment and timeline.
- **Check in regularly:** Touch base with students, get them thinking and talking about starting assignments and making progress. Reminders can happen via text, email, when soliciting feedback or commenting on their work, or even dropping a thoughtful “don’t procrastinate” note in the student chat room. Be proactive and show students that you’re interested in setting them up for success.

Conclusion

The fact is procrastination is a common human behavior and it happens with college students like the rest of us. It doesn’t have to mean dire consequences for class performance. College instructors can leverage the information from the procrastination study, be attuned to assignment start times and procrastination behavior, and get involved to steer students to stay on top of deadlines and assignment start times. Doing so can help them achieve desired course outcomes and learn the content well!

College instructors have never been in a better position to help those students at risk from procrastination. The data, tools, and tips are there to help you. Get more involved while teaching the course, take a few extra steps to identify and assist them, and you can make a positive difference for students in your course and in their college career.





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