

# Flexible deadlines and their effect on the turn in rate of assignments in a high school chemistry class

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## Introduction

While there are many factors at play in determining whether students turn in an assignment, one that has not yet received much attention in the literature is the effect of accepting late work. The goal of this study was to shed some light on that relationship so teachers can make an educated decision on which late-work policy is best for their students.

### Main Question:

- Does accepting late work affect the turn in rate of assignments in a high school chemistry class? If so, what is the effect?

### Sub-questions:

- Does the amount of extra time given to students to turn in late work affect the turn in rate?
- Does imposing a 20% penalty to late work motivate more students to get their work turned in on time?
- How do these various late work policies affect the teacher?

## Sample Group

William J. "Pete" Knight High School is a Title I school located in the northern part of Los Angeles County. The school serves roughly 3,000 students ranging from the 9<sup>th</sup> to the 12<sup>th</sup> grades. Most of the students are of Hispanic origin (79%), although there is a sizable population of students who identify as African American, and small populations that report Asian or Caucasian descent. About 74% of the student body qualifies for free or reduced lunches (US News and World Report, 2018).

In total, 119 students participated in this study, spread across four class periods. Of those, 86% were sophomores, 14% were juniors, and 2% were seniors. In total, 71 were female and 48 were male. These were introductory chemistry classes offered at a school that also offers honors sections of chemistry, so the class consisted primarily of average to low achieving students.



## Methodology & Treatment

Four different late-work policies were implemented in a high school introductory chemistry class, each for the duration of one academic unit each (2 weeks).

The treatments were as follows:

- 1) **No Late Work** – Late work was not be accepted
- 2) **Grace Period** – Students were allowed to turn in work one day late for full credit
- 3) **Extended** – Students were allowed to turn in work up to one week late for full credit
- 4) **Penalty** – Students were able to turn in work one day late but incurred a 10% penalty

At the conclusion of each unit, the percentage of assignments each student turned in, both on time and late, was tabulated and subjected to statistical analysis.

The findings were triangulated using data from student and teacher surveys on late work and the effects of various policies and a journal that I, the teacher, kept throughout the process.

## Results



Figure 1. Turn in rate of assignments by treatment, ( $N=119$ ).

- Accepting late work had highly significant effect on the turn in rate of assignments [ $F(2,354) = 23.8, p < 0.00001$ ], but the nature of the effect varied greatly depending on the policy.

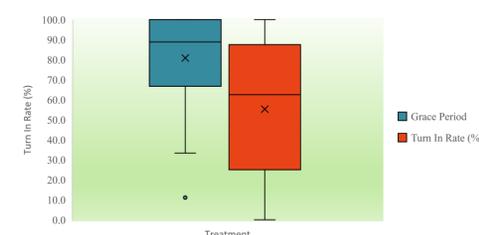


Figure 2. The effect of extra time on the turn in rate ( $N=119$ ).

- While providing students with one extra day led to a small increase in the turn in rate ( $M=80.87, SD=20.9$ ), extending the extra time to a full week led to a sharp drop in the amount of work turned in ( $M=55.25, SD=29.5$ ;  $t=-6.77$ ;  $p < 0.00001$ ).

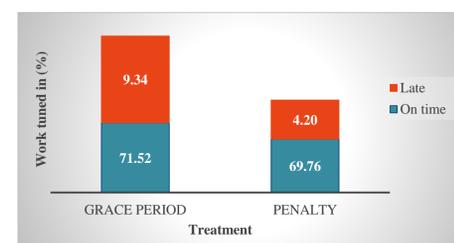


Figure 3. Effect of a grade penalty on the amount of work turned in ( $N=119$ ).

- Applying a 20% penalty to late work did not motivate more students to turn in work on time, but the amount of work students turned in late was more than cut in half [ $(M=9.23, SD=10.8)$  ( $M=4.2, SD=7.5$ );  $t=4.19$ ;  $p = 0.000039$ ].

## Conclusions

The late work policy a teacher implements in their class can have a profound effect on the amount of work his/her students turn in.

- Accepting work one day late for full credit leads to a small increase in the turn in rate of assignments (Figure 1).
- The greatest benefit appears to be for students in the lower quartiles (Figure 2).
- Accepting work up to a week late for full credit leads to a steep decrease in the turn in rate of assignments (Figure 1).
- Student comments and surveys indicate that this may occur as a result of increased procrastination on the part of students.
- Applying a 20% penalty to work turned in one day late does not motivate more students to turn in work on time (Figure 3).
- It seems that some students, especially those who are struggling with the material, tend to put off completion of the assignment knowing they will have an extra day, but then decide the work is not worth the effort in light of the penalty.

## Value

The most obvious benefit of this project is learning that allowing students to turn in work one day late for full credit will likely increase the amount of work turned in. I have already begun implementing this policy in all of my classes. Hopefully, this will translate into better student outcomes as they are more likely to practice, and I will have another chance to assess their learning along the way.

I am even more excited to have gained a better understanding of how students think, in terms of deadline flexibility and grade penalties. This knowledge will help me better motivate them through thoughtful design of lessons and policies across the board.

