Wells and Woes of My First Attempt at Becoming a Master at Mastery Grading

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Motivations

Ultimately as an instructor my goal is for my students to learn the course material and not just "pass" the class. The motivation is not shown by the students who typically are focused on passing with a certain grade on their transcript and may not be interested in a full understanding of the course material. (Sad but True)

So, how do I motivate my students towards learning and not just passing?

How can I set up my course so that the grade students receive does actually reflect their knowledge leaving the course?

How can I use grades as a motivator for mastery of learning?

These are questions I asked of myself and these same questions motivated me to attempt mastery based grading for my Calculus and Analytic Geometry Course Fall 2019.

Set up

Mastery Based Grading Homework Assignments:

- Mastery Based Grading: I plan to assign homework that represents all the different sections of the course and ensure each student must master each section.
- Homework should be due weekly and homework should consist of problems from each of the sections.

This is the test as it appeared on the course syllabus accompanied by the two graphics of Bloom's Taxonomy for learning.

The course was broken up into 4 different sections: Functions, Limits, Derivatives, Basic Integration.

Each section consisted of 4 levels of mastery which consistently contained the same elements:

- Level 1: Writing Assignment: Problems based on a mathematical software Edify
- Level 2: A worksheet typically given in class
- Level 3: A homework assignment worksheet (typically 3-4 problems that extend the concepts
- Level 4: The concepts in a new situation (typically an application of the calculus concepts)

Sample Mastery Assignments Level 1

Student Comments:

"She gave us much homework for no deadlines. Because realistic: we are college students we are not going to do them to much ahead of time."

"Nobody knew what was due until about week 3.

"With multiple types of homework and no deadlines, it was easy to lose track of what assignments needed to get done. In addition, her demands for complete mastery of assignments to earn any credit seemed unreasonable and her feedback was often vague."

"While I understand and appreciate that she was trying to get us to put in effort and work through problems on our own, I feel that her expectations were too high considering this was the first calculus course many of us took.

"If the class was supposed to be set up as a mastery class, where students could redo assignments until mastered, I feel like I was overwhelmed with the lenient deadlines and being given something for students to do in the interim, but that did not sit well psychologically for some students.

Grading Scale: The mastery grading scale was 0/1 which would indicate that you mastered a level or did not. However, this grading scheme was daunting and did not reflect the different levels of student mastery. I need to extend it to include progressive levels of mastery.

Cheating: It quickly became clear that many students were cheating so that once one problem mastered the assignment (typically by going to the SI instructor) a whole group of them would "magically master" the assignment with all the same mistakes.

Due Dates: Assignments were not given with due dates so students could turn in a mastery attempt at any time. Special mastery days were scheduled for the class so that students could work towards mastery. On these days students were encouraged to turn in at least two assignments for mastery check. However, most students procrastinated.

Return/Feedback: I was not able to return mastery assignments in a timely fashion so many students were waiting for feedback. I attempted to combat this by always having something for students to do in the interim, but that did not sit well psychologically for some students.

Overall Mastery Grading did motivate some students to be more focused on learning. So it is a keeper.

Levels: The different levels worked well and using Bloom’s Taxonomy as a guide was another bright spot. Also a keeper.

Due Dates/Days: Instead of allowing assignments to be turned in at any time, I plan to set a mastery date for each of the sections. Additionally, I plan to keep Mastery Thursdays but put a cap on the number of assignments that can be turned in per week. So that students should submit at least two and a maximum of four assignments per week.

Assignments: I plan on making some assignments shorter and requiring explanations only for a subset of the problems in an assignment so that students are not overwhelmed with the volume of assignments and having to write an explanation for every problem. I hopefully have the right balance here between assignments difficult enough so as to challenge me but short enough so as to not be overwhelming. I also plan on setting up mastery days where students can come together to work on assignments.

Cheating: I have no solution for this at this time, but I welcome suggestions.

For Future Iterations

Mastery Based Grading: I plan to assign homework that represents all the different sections of the course and ensure each student must master each section.

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Wells and Woes:

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