

Freedom of Choice: An Observational Study in Giving Students Control in the Classroom

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Abstract

Teachers must assess student learning in order to assign a grade in a course. Without giving the student the majority of the control, as in contract grading, a compromise of giving the students a single choice affecting the grading scheme is considered. Given that an instructor does not know the circumstances of each student, it would be difficult to think that all students can handle or want to handle a specific workload. The authors look at offering students the control to choose to complete homework assignments or not in a college Business Statistics class and compare the results in terms of grades to classes where no control over the assessment of grades was given.

Key words: student choice, student control, business statistics

1. Introduction

The playing field is not equal for all college students. Some students work as a student-worker on campus. Some students work a part-time job off campus. Some students work a full-time job. Some students own their own business. Some students are athletes representing the school. Some students are presidents of clubs on campus. Some students don't have any responsibilities outside of schoolwork. Not everyone has the same amount of time outside of the classroom to devote to academics. Nor does everyone need the same preparation to learn the concepts that are taught. Some students are capable of learning without having to complete every single problem that is suggested or assigned. Individual students have different study habits, preparation methods (cramming vs. daily studying), and workloads outside of class. The lives of students who fill a classroom are all unique. So why expect everybody to do the same thing inside the classroom?

1.1 Motivation

As an instructor, one should recognize this fact. Are there things that an instructor can do to help meet each student's needs? Contract grading is one method to allow students the choice of their assessment. In one study, student comments on contract grading found that the students had an appreciation for the control that they were given over their learning. They also stated that contract grading created a "trusting learning environment" and that it increased their satisfaction with the course. This same study cited a student who did not like contract grading due to being indecisive, but that same student recognized the benefit for other students and recommended the professor continue using contract grading in the future. One student was quoted as saying, "I wish more professors used grading contracts because we do not all learn the same way." (Hiller & Hietapelto, 2001)

In a study conducted with students in Business Administration classes, Polczynski & Shirland (1977) found positive student feedback to contract grading, such as the students felt they were “being treated as an adult” and “held responsible for my actions.” College students want to be treated as adults, so doing so in small ways allows them to feel like they have more control over their education and grade.

Anthony (2000) discusses the “common belief that college students should have enough discipline to set their own goals and assess their own problems.” And from that belief, teachers assume “responsible college students would diligently complete homework assignments, whether or not they were specifically assigned.” Having taught for 20 years, the instructor of the Business Statistics course in the experiment knows this is not the case. Some students are capable of learning the material without having to complete homework or studying for hours outside of class. And given the makeup of college students, not every student has the time to complete all homework assignments. According to the Georgetown University Center of Learning and the Workforce report “Learning While Earning: The New Normal” (Carnevale, Smith, Melton, Price 2015), “about 40 percent of undergraduates and 76 percent of graduate students work at least 30 hours a week.” If you add that to a typical fifteen to eighteen hour course load, that is more than a 40 hour work week even before any time spent outside of class studying is done.

Barr and Tagg (1995) spoke of a paradigm shift in colleges, one that went from colleges “provid[ing] instruction” to colleges “produc[ing] learning.” They suggest that the individual, the instructor, and the college can all take responsibility for learning that occurs. The instructor and student can take responsibility with the instructor allowing the students a choice for their assessments. The college can take responsibility by creating an environment to allow students to help themselves in learning. The university in the study offers free tutoring to its students in traditionally difficult courses. All three parties – student, instructor, and college – taking responsibility for student learning should produce an environment that has best chance for student success. So the instructor wanted to create an environment where the student could become involved with the learning process and decide on the amount of work to be required.

Given the quantitative nature of a Business Statistics course, contract grading was not exactly what the instructor wanted to implement. Mallinger (1998) stated teachers should offer “a structure that encourages independence yet also offers parameters to assure quality education.” The instructor was looking for something in between the strict common syllabus for all and the more lenient contract grading. Would it help students to have a single choice to include more assessments to determine a final grade? Could an instructor see better results by relinquishing some control over how student knowledge is assessed, while holding on to the majority of it? Would the students feel empowered by their choice and perform better?

The course used for the experiment is the second semester of a two semester sequence in Business Statistics. The course is taught in the Management Department of a public research university. It is considered a junior level course, however many seniors also enroll in it. Occasionally, there are sophomores enrolled, but not typically. It is a required course for most students in Business majors and generally has a higher DFW rate than other Management courses.

Having taught this course for many years with the same format of all students being required to have the same assessments, the instructor wanted to allow the students to have more control over their grades, instead of the instructor dictating what every student will do. The motivation behind this observational study was to see if letting the individual student decide on the amount of assessments throughout the semester would have an effect on grades.

There is a benefit to both the student and the instructor when allowing the student to have the freedom of choice for assessment. The benefit to the student is that they have control and can make a more informed choice than the instructor. A student will be more aware of his or her activities and obligations outside of the classroom, allowing the student to determine if he or she has the time required to complete the homework assignments in a manner that will hopefully help the final grade in the course. The freedom of choice also allows a student to decide how often he or she would like to be held accountable for the required knowledge. Choosing to do the homework assignments for a grade allows students more frequent assessments of the presented material. If a student chooses not to complete the homework for a grade, the only assessments would be tests and the final exam, offering fewer opportunities to show mastery of the subject. Individual students might have different opinions as to which option is more attractive to them, given the life that is led outside of the classroom, or even differing study habits.

The benefit to the instructor is not having as many assessments to grade throughout the semester if some students opt out of completing the homework assignments for a grade. And it relieves the negative/guilty feeling that some instructors might have due to the inequity of time available for all students, yet asking all students to complete the same amount of work.

1.2 Hypothesis

We hypothesized that grades would be better in classes where the students were given the freedom to choose if homework would be completed and graded or not. We felt students who knew they had the time to devote to completing the homework in a manner that would benefit their grade would make that choice to do so. And similarly, those students who did not feel they could complete the homework at a level that would help their grade would choose not to complete the homework for a grade. Thus, the student's knowledge of his/her ability to do well on homework would allow them to make the choice that would most benefit the final grade.

2. Methods

Three sections of the course during one semester were used as the control group, with all students being required to complete the homework assignments. Three sections of the course in the following semester and two sections in the next semester, for a total of five sections, were used as the experimental group. All of the sections of both the control group and the experimental group were given three tests and a final exam.

The grading for the homework remained the same for both groups and is described below, as it was stated on the syllabus.

10 homework assignments @ 5 points each. Homework assignments are due by 11:55 pm of the due date, unless directed otherwise. No late assignments will be accepted and no exceptions will be made. A 5 point scale will be used in determining your grade on a homework assignment, based on your percentage score. If you receive 90% or above, your grade will be 5. If you receive 80% and above, but below 90%, your grade will be 4.5. This pattern will continue, with 1 being the lowest grade given for those who score more than 10%, but less than 20%.

The students were allowed to complete the assignment as many times as they wanted before the deadline. This essentially allows everyone who completed the homework enough times to get at least 90% correct the opportunity to earn all 50 points. The constraint for earning all 50 points was the time that was needed to do so.

The control group was given 10 homework assignments. Part of the experimental group (the semester following the control group) was given 12 homework assignments, but the lowest two grades were dropped, keeping 10 homework assignment grades just as the control group had. The other part of the experimental group (the subsequent semester) was given 11 homework assignments, dropping the lowest one grade, and again keeping 10 homework grades. The reason for the variation in the number offered was trying to find a balance between allowance for computer/internet problems (inability to complete an assignment) and being accountable throughout the semester (not having too many chances to forget or have issues completing an assignment).

3. Data Analysis

We used final averages as the outcome we were comparing between groups. We also looked at the proportions of those students who exempted the final exam (with an average of 93% or higher) and the distribution of letter grades. Those students who were still enrolled but did not finish the course (did not to take the final exam, but not due to exemption) were excluded from the data.

3.1 Control vs. Experimental

The control group had no choice in the number of assessments that were taken. All students were required to complete ten homework assignments, take three tests, and a cumulative final exam (unless exempt from it due to a high enough average). There were 112 students in the control group and the average of the final numerical grades in the course was 77.1%. The percentage of students that exempted the final exam due to a high enough average at the end of the semester was 16.1% (18 of the 112 students). The distribution of letter grades for the control group is shown in Table 1.

The experimental group had to take three tests and a cumulative final exam (unless exempt from it due to a high enough average), but they were given the choice to complete the homework assessments or not. There were 178 students in the experimental group, with 65 students choosing to complete the homework for a grade. The average of the final numerical grades in the course for all students was 74.8%.

The percentage of students that exempted the final exam due to a high enough average at the end of the semester was 11.8% (21 of the 178 students). The distribution of letter grades for the experimental group is shown in Table 2.

Histograms of final numeric grades were constructed for each group, and neither group appeared to deviate from a normal distribution. A T-test was conducted to determine if the average of the final numerical grades for the control group was less than that of the experimental group. However, given our averages of the two groups with the experimental group being smaller, we knew the outcome before the test was conducted. There was not enough evidence to conclude ($p = 0.931$) that students who get to choose the number of assessments to be grades will have a higher average than those who do not get a choice. It is interesting to note that if conducting a two-sided hypothesis test to determine if there is a difference in average final numerical grades between the two groups, there is not enough evidence to conclude the grades are different ($p = 0.07$) at the 5% significance level. So while we can not conclude that students with a choice of a grading scheme will do better on average than those without a choice, we can take it even further by not being able to conclude there is a difference in average grade between those students with a choice and those without one. This is true when comparing numerical grades (percentage points) for the semester.

We also looked at the distribution of letter grades among the two groups. A contingency table was constructed using the letter grades and the groups (control/no choice given and experimental/choice). We conducted a Chi-square test for independence to see if letter grade is independent of class grading scheme (giving the students a choice or not). We were unable to conclude at the 5% significance level ($pval = 0.10$) that letter grade and grading scheme are dependent.

Another item that interested us was the proportion of students who exempted the final exam. A test of two proportions was used to determine that there is no difference in the proportion of students who get to exempt the final between the two grading schemes ($pval = 0.79$).

We were surprised by our findings, as they were not what we expected. There was no difference in average final numerical grade, nor in the proportion of students who exempted the final exam between those students who were not given a choice as to how they would be assessed and those who were given a choice. In addition, letter grade and grading scheme were not found to be dependent.

3.2 Homework vs. No Homework

Even though we could not conclude offering a choice on the number of assessments had an effect on final grade, we were curious about if students were given a choice to complete the homework assignments for a grade, whether there those that did the homework would fare better than those that did not. Tables 3 and 4 give the distribution of grades for those who chose to complete the homework for a grade and those that did not. We found that grades did not deviate from a normal distribution in either group. So a two sample T test was used to determine if final grades would be higher on average for those students who completed the homework. We found that they were ($pval = 0.04$) at the 5% significance level. However, both group averages would equate to the same letter grade. We also found that no significance difference could be found in the proportion of student who exempt the final exam ($pval = 0.06$). In terms of the distribution of grades, again a contingency table was created and a Chi-square test for independence found the distribution of grades not to depend on the choice of completing the homework for a grade or not ($pval = 0.11$).

4 Future Study

While our findings are not as interesting as we had hoped, we would be curious as to how the students felt about being given a choice. Would they enjoy a class more if they felt they had some control over the grading scheme? Exploring a more qualitative approach to evaluating differences between being given a choice of assessments or not might have different results than comparing quantitative values such as final numerical grades.

Grade	Count	Percentage
A	10	8.9
B	17	15.2
C	32	28.6
D	32	28.6
F	21	18.8

Table 1 – distribution of letter grades of control group
* percentages do not add to 100% due to rounding

Grade	Count	Percentage
A	25	14.0
B	50	28.1
C	50	28.1
D	25	14.0
F	28	15.7

Table 2 – distribution of letter grades of experimental group
* percentages do not add to 100% due to rounding

Grade	Count	Percentage
A	12	12.3
B	24	12.3
C	13	20
D	8	37.0
F	8	18.5

Table 3 – distribution of letter grades of homework group
* percentages do not add to 100% due to rounding

Grade	Count	Percentage
A	13	11.6
B	26	23.2
C	37	33.0
D	17	15.2
F	19	17.0

Table 4 – distribution of letter grades of no homework group

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