Do-Review-Redo: Incorporating Peer Review and Team-Based Learning in Optimization Modeling

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The Issue

The human brain is naturally curious and inquisitive[1]; however, we encounter students setting aside learning in their quest to achieve a certain grade. Faculty assign grades for a variety of reasons including institutional requirements and policy and as a metric to track student learning. While this common practice seems logical, it often creates a disconnect between the goal, student learning, and the reality—students gaming school to get the grade they want.

Introducing an Ungrading Practice

Ungrading or going gradeless, is becoming more popular as a strategy to help solve the conundrum of learning vs. earning a grade[2]. Some faculty incorporate limited ungrading practices in their courses while others have gone completely gradeless.

The instructor has shifted a majority of assignments in a graduate-level Quantitative Analysis course to an ungrading model and reduced the weight of assessments which are graded for accuracy. Assignments in the course discussed are completed using a "do-review-redo[3]" process featuring team-based feedback and learning. The course is focused on optimization modeling using Microsoft Excel and is a requirement for Master of Business Administration and Master of Science in Business Analytics programs. It is also an elective for other graduate programs at the University of South Dakota. The course is taught both in person and online. A schedule change prevented testing ungrading practices in an in-person section; however, using the "do-review-redo" process and team-based learning has been tested in two online sections, each with over 50 students. Beyond the context of this course, this process would be easily applicable to any course with coding, modeling, or other areas where trying, testing, revising, and retesting are a key component in the course.

Learning Environment Overview

- Two online, Quantitative Analysis courses
- Course is graduate-level taken mostly by students in the Master of Business Administration, Master of Science in Business Analytics, and Master of Accountancy programs
- USD uses Desire to Learn (D2L) Learning Management System
- Content includes course notes, example Excel templates, prerecorded conceptual and practice videos, weekly office hour recordings with additional practice, and independent practice opportunities
- Course includes two exams and one project in addition to the weekly assignments and peer review activities
- Most students are working professionals with home or care responsibilities

Implementation Management

Managing Group Selection

- Students complete a survey in the first 2-3 weeks of the course
- Groups are 2-4 students
- Group Types
  - Student Selected Groups: If students know who they would like to work with, they provide names and are grouped accordingly
  - Instructor Selected Groups: students answer a series of questions about their availability and preferences and are grouped accordingly—students who neglect to complete the survey are grouped together
- Survey is a completion-based grade item in the course

Managing Individual Submissions

- Students individually submit weekly assignments within the LMS using Group Lockers (using the Discussion function is being tested in 2024 Spring)
- Weekly assignment submissions are graded for completion by the instructor and are visible to all students in the group

Managing Peer Reviews

- Students are provided with an Excel file rubric to "grade" each other's assignments
- Completed rubrics are posted to the Group Locker so they are visible to all students (using the Survey feature was tested in 2023 spring and was found arbitrarily challenging for students to retrieve feedback)
- Completed rubric submission is graded on completion

Managing Group Portfolio Submissions

- Students have a week to work with their group to build a portfolio including all models they have completed previously, incorporating peer feedback
- Portfolios are submitted to a group dropbox (one per group) and graded on accuracy, modeling technique, formatting, and communicating a recommendation based on the outcome of the model
- Students received a solution example of all models after their portfolio is submitted

Managing Group Member Feedback

- Individual students complete a survey on each of their group members indicating the quality of participation relative to the group dynamic
- In the midterm survey, students can also request to be moved to a different group for the assignments pertaining to the second portfolio
- If members of a group indicate a group member was "Terrible," that individual's portfolio score is reduced by up to 10 percentage points

Comparison Descriptors	2023 Spring	2023 Summer
Number of Students	64	54
Number of Groups	22	19
Students Switching Groups at Midterm	2	1
Students Indicating Dislike of Group Structure	11	7
Midterm Assignment Score Difference*	Higher	Lower
Final Assignment Score Difference*	None	None
Midterm Exam Score Difference*	None	None
Final Exam Score Difference*	Lower	None
Project Score Difference*	None	Lower

*Indicates difference was significant at the α = .05 level where 2023 Spring was compared to 2021 Spring and 2023 Summer was compared to 2022 Summer

Summarized Feedback from Students

- Most enjoyed working in a group completing Peer Reviews, and completion-based grading on weekly assignments before portfolios were due; they enjoyed
  - Having others to work with and ask questions of
  - Learning more from group members
  - Having interaction opportunities in an online course environment
- Those who didn't enjoy working in a group indicated they
  - Didn't see the point
  - Were concerned that group members who didn't do as much work would receive the same score on portfolios
  - Would have preferred portfolios to be submitted individually
- Students in the 2023 Spring course indicated the D2L survey tool was too unwieldy to be useful; this was changed in 2023 Summer.
- Students in both semesters indicated the Group Lockers were confusing; Discussion boards are being tested for weekly submissions in 2024 Spring

Digital Resources

Use this QR Code to access examples of the resources provided to students and helpful tips for implementing a "do-review-redo" with Peer Review process in your course. Resources examples include:
- A Brief Introduction to Ungrading
- Communication of Process to Students
- Peer Review Preferences Survey
- Implementation Details using D2L
- Rubrics for Weekly Peer Review
- Group Portfolio Instructions

References:

[1] Lang, J. (2020). Distracted : Why Students Can't Focus and What You Can Do About It. Hachette Book Group.
[2] Blum, S. (2020). Ungrading: Why Rating Students Undermines Learning (and What to Do Instead). West Virginia University Press.
[3] Riesbeck, C. (2020) Critique-Driven Learning and Assessment. In Blum, S. (2020). Ungrading: Why Rating Students Undermines Learning (and What to Do Instead). West Virginia University Press.

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