ASSESSING IMPROVEMENT IN CASE ANALYSIS SKILLS

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ABSTRACT

Much has been written about case teaching, but to date little *direct* empirical research has been done to evaluate case learning. A method for assessing the improvement in case analysis skills is proposed that controls for grader bias as well as differences in student ability and case difficulty. The model is applied in a pilot study.

The performance of a student on a written case analysis is conceptualized here as a function of the student's average case analysis ability over the time period of study, the difficulty of the case, and the case's position within the sequence of cases that a student completes. The effect of these factors can be described as:

(1) $CG_{ij} = SAA_i + CD_j + SP_{ij}$

Where

CG_{ij} = the Case Grade for student i on case j,
SAA_i = Student i's Average Ability,
CD_j = the Case Difficulty of case j, and
SP_{ij} = the Sequential Position of case j for student i (e.g., completed as student i's first case, second case, third case, etc.)

The model can be seen as a type of multifactor experiment with one within-subjects factor (the sequential position of a case), one between subjects factor (the difficulty of the case), and one covariate (student ability). Note that when all students complete all cases in the same order, the case difficulty and the case sequential position will be highly if not perfectly correlated. To be estimable, at least some students must complete cases in a different sequence than other students.

To collect data to test the model, a longitudinal experimental design similar to that shown in Table 1 is recommended. The table shows a two group (two course sections) design, and would be suitable for testing the hypothesis that students improve their case writing skills as they write more cases. (A four-section study could test for differences in learning related to two different case teaching methods.) All groups write case analyses that are graded using the same rubric. The sequence of cases (A, B, C, and D) is reversed for each group. Within each section, half the students (i.e., Group 1a) are randomly assigned to write up case A as their first case, and half (Group 1b) are assigned to write up the next case as their first case. In this design, cases B and C can be completed as a student's first, second, or third case, and cases A and D can be completed as a student's first or third case, balancing the design. In addition, cases are graded "blind" by asking students to write their student numbers on the first page but not their names. Thus, for example, as the teacher grades case B, he or she will not know if the write-up author is completing his or her first, second, or third case, and a source of grading bias is eliminated.

TABLE 1: Proposed Case Learning Research Design

Groups	Week 2	Week 4	Week 6	Week 8
Section 1	Case A	Case B	Case C	Case D
Group 1a	1st	2nd	3rd	
Group 1b		1st	2nd	3rd
Section 2	Case D	Case C	Case B	Case A
Group 2a	1st	2nd	3rd	
Group 2b		1st	2nd	3rd

A pilot study used 397 cases from 161 MBA students in a repeated measures design, wherein most students provided three measures. GPA was used as a covariate (R^2 = 14%). The results indicate that the improvement in case writing skills in this sample was small at best. The variance in case grades due to improvement in case writing, after controlling for student ability, is probably no larger than 2%. (Improvement was not significant in some models.) Further, it appears that the variance in grades that a student is likely to see as they complete a series of cases is much more due to the variance in case difficulty or the week of the quarter (with an R^2 of around 5%) than due to improvement in their own case writing. Evidence was found for a confirmation bias in grading, wherein the teacher gave higher grades than the quality of the case write-ups merited as the quarter progressed. In addition, none of these models explains a large amount of variance, indicating that more of the variance in case grades is likely due to differences in the effort the students put into each case write-up and "grading error" on the part of the teacher.

References and exhibits available upon request.