

STUDENT ATTITUDES AND PERCEPTIONS OF JUSTICE TOWARD SPECIFICATION GRADING IN AN UNDERGRADUATE MANAGEMENT COURSE

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ABSTRACT

This study explores the effectiveness of specification grading, an approach to grading that incorporates specific requirements and detailed feedback on student performance with a focus on student mastery of content, in two undergraduate management courses taught by the author. The study found that specification grading effectively distinguishes between students based on their level of mastery, with positive correlations between final grades and exam averages. Students perceived specification grading as fairer than traditional grading in terms of procedural, informational, and interpersonal justice, but not distributive justice. They also saw it as a relevant proxy for workplace performance evaluations. However, student attitudes toward the grading approach were varied. Some appreciate the sense of control, clear guidelines, and rewards for participation and effort. However, others found it confusing, time-consuming, and demotivating, with concerns about the lack of middle ground and excessive workload. The results of this study may help other academics create specification grading approaches for their courses that minimize negative student attitudes and increase student autonomy and mastery of the course material.

INTRODUCTION

For academics in higher education, grading might be the one activity we enjoy the least. Still, student grades are the de facto method of evaluating students to allow them to progress through degree completion. Academic evaluations include assessments of student performance through summative evaluations of obtained knowledge, resulting in grades tied permanently to the student record based on expert judgment (Schlemer & Vanasupa, 2016). Students' familiarity with this "percentage of perfection" grading has trained them to align their effort with achieving some level of quality, such as A, B, or C. However, once students graduate from college and enter the workforce, the approach to evaluating their performance changes. Employees are assessed based on satisfactory performance of job duties and knowledge of their job using performance assessments or evaluations (Thuy & Trinh, 2020). Feedback is provided to employees to enable them to improve their performance over time. Thus, applying a grading approach within the classroom that mimics workplace performance appraisal systems will better prepare students for their future careers.

The current study evaluates one instance of applying specification grading, a grading approach incorporating specified requirements and detailed feedback on student performance to

allow students to improve their performance on specific assignments. Research has shown that specification grading is a valuable tool for providing actionable and timely feedback to students, allowing them to quickly reflect and modify their skills (Carlisle, 2020).

This paper explores the effectiveness of specification grading in a management course by answering three guiding questions. First, does specification grading sufficiently distinguish students who have attained the minimum required level of knowledge from students who have mastered the content? Second, what are student perceptions of specification grading as an equitable assessment of performance and an appropriate preparation for workplace performance evaluations? Finally, what are student attitudes about their experience in a specification-graded course? Examining data from two undergraduate courses designed around mastery grading will answer these questions and assist other instructors in incorporating specification or mastery grading into their course design.

SPECIFICATION GRADING

Specification grading, also known as mastery grading, is an alternative to the teacher-driven, summative approaches to traditional grading, where grades are often based on a complicated rubric or intuitive assignment of “percentage of perfect” grades that indicate student proficiency in completing an assignment (Nilson, 2015). In traditionally graded courses, students often perform to the minimum requirements, not fully comprehending the material but earning enough to “make the grade” (Nilson, 2015). Instructors using this approach are burdened with providing unbiased and consistent feedback that takes time and mental effort.

Specification-based assignments can be structured in many ways, such as a design where students earn points for completed work or where students must complete a bundle of work to earn a particular grade (e.g., A, B, C). Regardless of the structure, students earn points or credit for completed work by sufficiently meeting assignment requirements. Assignment requirements are declarative sentences, such as “the author must include at least one valid and appropriate reference other than the textbook to support recommendations.” For example, in a project management class, an assignment to produce a project charter might require appropriate content, a correct format, and submission quality (e.g., grammar and spelling). Specification-based assignments are similar to assessments using task-based rubrics, where task-specific criteria and performance statements are arranged in a matrix to denote the quality of a student’s response (Atkinson & Lim, 2013). The difference between specification-based assignments and task-based rubrics is that in the former, students are given a list of “exemplar” statements that describe what an optimal student submission should contain. Task-based rubrics may include the optimal statements but also include statements that describe varying levels of quality, making the process of developing rubrics time-intensive and subjective.

One caveat to the success of specification grading is that both the assignment and grade requirements are clear and unambiguous (Nilson, 2015). Proponents of specification grading suggest that this grading methodology motivates students to do their best rather than to perform at the minimum acceptable standards (Elkins, 2016). Students become active participants in their learning and appear more motivated to submit quality work.

Specification grading has been applied at the undergraduate and graduate levels and in diverse areas such as communication (Elkins, 2016), political science (Blackstone & Oldmixon, 2018), mathematics (Carlisle, 2020), dietetics (Pope et al., 2020), public affairs (Jones, 2020), and education (Prasad, 2020). Approaches to implementing specification grading are similar, but unique features distinguish how instructors organize and evaluate assignments. Some instructors started with assignments grouped by difficulty level (Blackstone & Oldmixon, 2018), while others bundled assignments based on the level of effort required (Elkins, 2016; Pope et al., 2020). Other instructors created assignment bundles based on a combination of effort and minimum student performance (Carlisle, 2020; Jones, 2020; Prasad, 2020) or solely on student performance (Schlemer & Vanasupa, 2016).

There were also various approaches to allowing students to revise submitted work that did not meet the assignment requirements. Most instructors allow for one or more revisions to be submitted by students (Elkins, 2016; Jones, 2020; Pope et al., 2020; Prasad, 2020; Schlemer & Vanasupa, 2016). Some instructors introduced a token system, where students could exchange a token for a chance to revise a submission or submit work late (Blackstone & Oldmixon, 2018; Carlisle, 2020).

In these studies, the instructors also evaluated student attitudes and performance as indicators of the validity of specification grading as a practical and appropriate method of evaluating student performance. The following sections will explore student performance and attitudes as a basis for evaluating the success of one implementation of specification grading in an undergraduate management course.

Specification Grading and Student Performance

The first question we must consider as educators is if specification grading sufficiently distinguishes students who have mastered the minimum required level of knowledge from students who have mastered more advanced concepts. The primary purpose of teaching students is to help them master a subject. Specification grading is designed around mastery, and most implementations allow students to master content by submitting multiple attempts of an assignment or quiz (Elkins, 2016; Jones, 2020; Pope et al., 2020).

After implementing specification grading, Blackstone and Oldmixon (2018) found no difference in the average or distribution of course grades between point- and specification-based grading systems. However, Carlisle (2020) noted that the specification-based grading system improved student performance. Numerous variables may affect the difference in grading, such as the content of the course (social science (Blackstone & Oldmixon, 2018) versus mathematics (Carlisle, 2020) or the number of opportunities allowed for revision of submitted work. Being able to revise submitted work that did not meet the assignment requirements may give students who struggled early in the course a second chance that they might not have been given in a traditionally graded course (Carlisle, 2020).

Thus, a well-designed specification-based grading system should balance the opportunities for students to master the content with the level of effort required to earn higher grades (Carlisle, 2020). Further, the grading scheme should not reduce or negate the expected

correlation between exam grades and final grades. It is preferred that students receive grades commensurate with the amount of learning achieved and the effort required, which leads to the first hypothesis.

Hypothesis 1: Student final grades correlate positively and significantly with student exam averages.

Specification Grading and Perceptions of Equity

An essential aspect of well-designed grading systems is the ability to be applied fairly for all students. Students have perceived specification grading as helpful to their success and reduced feelings of stress about the course (Pope et al., 2020). Researchers have also noted that students felt the grading approach was fairer than other forms of grading (Jones, 2020). In the study by Pope et al. (2020), students appreciated the transparency of the grading process, which led to a sense of trust in the fairness of the grading approach.

The link between trust and perceptions of fairness has been conceptualized in the management literature as organizational justice (Table 1; Colquitt, 2001). Organizational justice is the overarching term for notions of fairness in how organizational procedures are applied (procedural justice), how outcomes or rewards are distributed (distributive justice), how organizational leaders treat employees (interpersonal justice), and how information is shared (informational justice) (Colquitt, 2001). The dimensions of justice have demonstrated positive effects on task performance in the workplace (Colquitt et al., 2013) and satisfaction with performance appraisals (Saraih et al., 2018), so it is a small step to consider that this relationship may also hold in academic settings.

Dimension	Definition	Examples
Organizational Justice	Perceptions of how policies, procedures, incentives, relationships, and information are fairly shared or applied within an organization (Castillo & Fernandez, 2017; Colquitt, 2001; Colquitt et al., 2013)	
Procedural Justice	Fairness perceptions of the application of policies and systems for decision-making (Castillo & Fernandez, 2017; Colquitt, 2001; Unterhitzenberger & Bryde, 2019)	Performance Appraisal Policies, Grading Guidelines
Distributive Justice	Fairness perceptions of the distribution of resources and outcomes (Colquitt, 2001; Kovacevic et al., 2013)	Pay, bonuses, promotion, recognition, grades
Interpersonal Justice	Fairness perceptions of how people are treated and respected (Colquitt et al., 2013; Kovacevic et al., 2013; Saraih et al., 2018)	Relationship quality between supervisor and subordinates or instructor and student
Informational Justice	Fairness perceptions of how information is shared and communicated (Colquitt, 2001; Kovacevic et al., 2013; Unterhitzenberger & Bryde, 2019)	Feedback quality and transparency of evaluation and decision-making process

Organizational justice and its relationships with student achievement (performance) and satisfaction have been studied in academic settings, with various results. Kovacevic et al. (2013) found that procedural justice was positively correlated with first-year college student achievement but not with other forms of justice. Castillo and Fernandez (2017) observed that a positive relationship existed between distributive, informational, and interpersonal justice with student satisfaction but not procedural justice.

Best practices in specification grading advise that the evaluation method should be transparent, reduce faculty-student conflict, increase students' feelings of situational control, and communicate high academic standards (Nilson, 2015). Because specification grading is designed to be transparent regarding how grades are evaluated, this assessment method should strengthen students' positive perceptions of informational justice. Specification grading should improve student perceptions of interpersonal justice by reducing conflict between students and instructors. Specification grading should further increase student perceptions of distributive justice by giving them autonomy through consciously selecting a target grade to achieve. Finally, because specification grading is designed to communicate high academic standards, this assessment approach should improve student perceptions of procedural justice.

Hypothesis 2: Students perceive that specification-based grading provides a more equitable approach to evaluating student performance than traditional grading approaches in terms of a) procedural justice, b) information justice, c) interpersonal justice, and d) distributive justice.

Specification Grading as Proxy for Workplace Performance Evaluations

A final evaluation of specification grading relates to the primary purpose of business and management education programs, which is to prepare students to enter the workforce upon graduation. One way to prepare students is to provide them with knowledge and experience about how their performance will be evaluated in the workplace. Academic evaluations include assessments of student performance through summative evaluations of obtained knowledge, resulting in grades tied permanently to the student record. However, in the workplace, performance evaluations include proof of job-related knowledge and an evaluation of how well the employee works within the job context (Murphy, 2020; Murphy et al., 2018). Letter grades are not typically given in workplace settings, and most employers allow employees to redo sub-par work.

In workplace performance appraisal systems, performance standards (learning outcomes) are defined, individual performance goals (target grades) are identified, and detailed feedback is usually provided with improvement plans to enable mastery of one's job (Murphy, 2020; Murphy et al., 2018; Nilson, 2015). In both systems, feedback mechanisms and improvement plans are included in the evaluation process (Murphy, 2020; Murphy et al., 2018; Nilson, 2015).

Specification grading is similar to workplace evaluations in that it allows students to redo unsatisfactory work and gives them control over their effort and performance (Jones, 2020).

Thus, students are expected to perceive specification grading as an appropriate proxy for workplace evaluations.

Hypothesis 3: Students familiar with workplace performance evaluations perceive that specification-based grading is similar to how performance is evaluated in the workplace.

Example Course Design

The course evaluated here is a required course for all BBA Management students. The course is designed with a management focus and aligns with the college's mission of preparing students to become innovative and ethical business and technology professionals. Learning objectives are defined at the department level, and all sections taught must satisfy the stated course learning objectives. The learning objectives represent the minimum level of knowledge expected to be acquired by students.

There have been several iterations of the grading approach to this class, continuously improving over four semesters. The initial deployment led to mixed results and the realization that students needed to be taught how to work with specification grading since they were used to percentage-based grading. During the second and third iterations, an effort was made to clarify the distinction between effort and performance for each target grade. Early iterations did not adequately distinguish between higher grades and did not include how D and F were assessed.

The final iteration, presented in Table 2, addresses the limitations of the earlier iterations. A clear delineation between effort and performance for each grade level (A, B, C) was achieved. Since BBA management majors must also earn a C or better in the course to earn credit toward their degree, a grade of "C" represents the minimum knowledge and performance expected for all students. Students who do not meet the minimum requirements for a C are assessed at the D or F level based on their participation, exam average, and assignments submitted. The distinction between the grade levels relates to the effort and mastery required to achieve each grade level, where the average exam and quiz score assesses mastery, and effort is assessed by the quantity and type of work completed that meet the stated requirements.

Table 2 EXAMPLE GRADE REQUIREMENTS
<p>For a “C,” you must satisfactorily complete the following activities.</p> <ul style="list-style-type: none"> • Earn “MET” on the Career Skills Assessment. • Earn a 70% average or greater average on all exams and quizzes. • Earn “MET” on 70% of the learning modules.
<p>For a “B,” you must satisfactorily complete the following activities.</p> <ul style="list-style-type: none"> • Earn “MET” on the Career Skills Assessment. • Earn a 70% average or greater average on all exams and quizzes. • Earn “MET” on 70% of the learning modules. • Earn “MET” on 3 of 4 Case Analysis assignments.
<p>For an “A,” you must satisfactorily complete the following activities.</p> <ul style="list-style-type: none"> • Earn “MET” on the Career Skills Assessment. • Earn an 85% average or greater average on all exams and quizzes. • Earn “MET” on 85% of the learning modules. • Earn “MET” on 3 of 4 Case Analysis assignments.
<p>Grades of “D” or “F” will be given to students who do not meet the minimum requirements for a C and will be determined based on a combination of content mastery and student effort.</p>

Other than exams and quizzes, all assignments are scored as “MET” or “NOT MET” based on whether students meet the assignment’s requirements. Every assignment includes a list of requirements that must be met for full credit. Students are encouraged to use these as checklists to ensure their submission meets all requirements. After the first submission, students can submit a revision within two weeks of the posted feedback based on instructor feedback for work that initially does not meet requirements.

Assignments focus on topics relevant to the class and require students to research current management trends, suggest a solution to a problem, or analyze a typical management scenario and make recommendations. Assignments are expected to take students 1-2 hours to complete. Student submissions are evaluated against a list of requirements. An example of assignment requirements is listed in Table 3.

Table 3
EXAMPLE ASSIGNMENT REQUIREMENTS FOR “MET”

<p>A “MET” score requires the following to be satisfied by the student’s submission.</p> <ul style="list-style-type: none"> • FORMAT: The document shall be formatted appropriately: <ul style="list-style-type: none"> ○ Single-spaced, 12-point font (any professional style), and 1-inch margins. ○ Word document or format that is compatible with Word. ○ Use the headings that are provided in the instructions to organize your response (e.g., “1. Key Issues”). Do not include question text. • RESPONSES: Responses must sufficiently address the questions in the assignment (at the instructor’s discretion). • SOURCES: The submission must include at least one valid and appropriate reference in addition to the case and textbook. <ul style="list-style-type: none"> ○ In-text citations must be included as appropriate, and associated references shall be formatted correctly in a “Works Cited” list at the end of the document. ○ Please visit the University Library online guides for assistance formatting citations and references (link redacted). ○ Turnitin Similarity Rating must be less than 15%, excluding the works cited. • QUALITY: The submission shall be free of grammar, spelling, and other writing errors. • WORD COUNT: The body of the submission must be at least 750 words. <ul style="list-style-type: none"> ○ This excludes the list of references to be included at the end of the document.
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METHOD

Research Design

Three surveys were delivered to students’ university email accounts using Qualtrics™. The first survey was delivered in week 2 after course enrollment was finalized. The first survey asked questions about respondent demographics, the student’s target grade for the class, open-ended questions about their experience with specification grading, their level of understanding about how grades would be calculated in the class, and several questions evaluating the student’s general self-efficacy and perceptions of equity in grading processes in college. Descriptions of the measures used to evaluate these concepts are discussed below.

A second survey was delivered during week 8, the semester’s mid-point. At this point in the semester, students usually understand the approach to grading and are well-positioned to earn at least a C for the class. In the second survey, students were asked open-ended questions about their rating of specification grading as a compelling motivation for learning the course material, their likes and dislikes of specification grading, and their understanding of how grades are assigned in the course. Students were also asked about their familiarity with workplace performance evaluation systems and how well specification grading prepared them for the same.

A final survey was delivered during the last week of the semester. In this survey, students were asked to evaluate the perceived justice (procedural and distributive) of the course grading approach and the perceived interpersonal and informational justice demonstrated by the instructor. At this point, students knew what their course grade would be.

Quantitative Data

General Self-efficacy. Student general self-efficacy was evaluated using a measure developed by Chen et al. (2016). Example questions include, “When facing difficult tasks, I am certain that I will accomplish them” and “I will be able to overcome many challenges successfully” (Chen et al., 2016). Reliability for the eight-item measure was high ($\alpha = 0.89$, $n=8$).

Justice Perceptions. Both measures of justice (regarding the general grading approaches and the specification grading approach) were evaluated using an adapted version (Colquitt, 2001). For the general perceptions of grading justice, prompts directed the students to think about their experience with the various grading approaches and instructors they have had. For the specific perceptions of grading justice (specification grading), students were asked to think about their experience with the grading method of the current course and their current instructor. They answered twenty questions relating to the underlying constructs. Procedural justice included seven statements (e.g., “In general/in this course, to what extent have you had influence over the grading approach used to determine your course grade?”). Distributive Justice was measured with four items (e.g., “In general/in this course, to what extent does your grade reflect the effort you have put into your work?”), as was interpersonal justice (e.g., “In general/in this course, to what extent has your instructor treated you with dignity?”). Informational justice was measured with five items (e.g., “In general/in this course, to what extent has your instructor communicated feedback in a timely manner?”). Reliability estimates and pairwise correlations for these measures are listed in Table 4.

	1	2	3	4	5	6	7	8	9
1. GENSEFF	(0.89)								
2. GENPROJ	0.064	(0.76)							
3. GENDISJ	0.104	.414*	0.92						
4. GENPERJ	-0.004	.352*	.591*	(0.89)					
5. GENINFJ	-0.030	.528*	.622*	.544*	(0.82)				
6. INSPROJ	-0.143	0.070	0.038	0.200	0.076	(0.83)			
7. INSDISJ	-0.070	-0.080	-0.090	0.219	-0.116	.506*	(0.93)		
8. INSPERJ	-0.107	-0.221	0.069	0.196	0.048	0.227	.450*	(0.95)	
9. INSINFJ	0.022	-0.124	-0.085	0.059	0.004	0.285	.512*	.457*	(0.82)

Note1: Reliability Estimates are on the diagonal; Valid Cases = 55.
 Note2: GENSEFF = Student General Self-efficacy; GENPROJ = General Procedural Justice; GENDISJ = General Distributive Justice; GENPERJ = General Interpersonal Justice; GENINFJ = General Information Justice; INSPROJ = Course-Specific Procedural Justice; INSDISJ = Course-Specific Distributive Justice; INSPERJ = Course-Specific Interpersonal Justice; INSINFJ = Course-Specific Information Justice.
 Note3: * Correlation is significant at the 0.01 level (2-tailed)

Qualitative Data

Open-ended questions were included in Surveys 2 and 3 (see Table 5), and student responses were analyzed using a combination of sentiment analysis and content analysis. Student attitudes toward specification grading were analyzed using NVivo 12 Pro sentiment analysis, a scoring model for positive, negative, and neutral tones (*NVivo 12 Plus*, 2018). Statements were scored for sentiment by paragraph (entire response). Although the open-ended questions were not required, most students responded sufficiently.

Survey	Guiding Questions
2 (Mid-semester)	<ol style="list-style-type: none"> 1. What do you like or not like about the approach to grading in this course? Please explain with specifics. 2. Briefly describe your understanding of how to get the grade you want in this course. 3. In your own words, describe how your performance is or might be evaluated at work.
3 (End of Semester)	<ol style="list-style-type: none"> 1. What was the most important thing you did to achieve the grade you wanted in this course? 2. What did you like or not like about the approach to grading in this course? Please provide specific examples. 3. How did the grading of this course impact your learning of the course content? 4. Now that you have experienced this style of grading, would you like to see other instructors use it? Why or why not?

Research Participants

Research participants include a convenience sample of undergraduate students enrolled in sections taught by the author during one semester. Students were awarded extra credit for each survey they completed. Students could opt out of survey participation at any time with no penalty, and students had the option to earn extra credit for an alternate set of activities to ensure students did not feel pressured to participate. Of the 55 students invited to participate, 28 completed all three surveys (51% response rate). 43% took the course face-to-face, while the remaining (57%) took the same course online. Students were young adults (age 18-24 = 79%) and worked at least part-time (work part or full-time = 68%, full-time student = 32%). The genders were equally represented (male = 50%; female = 50%). Respondents were juniors (11%) and seniors (89%) taking upper-division undergraduate coursework.

RESULTS

Hypothesis Tests

The first hypothesis proposed that specification grading sufficiently distinguishes students who have mastered the minimum required level of knowledge from students who have

mastered more advanced concepts. The hypothesis was evaluated by comparing the student exam average and the course final grade. Results demonstrate a positive and significant correlation between student final course grades and the exam average (Table 6). Thus, hypothesis 1 is supported, and the grading approach did not disrupt the expected positive and significant relationship between exam averages and the final course grade.

Variable	Mean (S.D.)	r
1. Final Course Grade	0.81 (0.10)	-
2. Exam Average	0.79 (0.15)	0.563**
** Correlation is significant at the 0.01 level (2-tailed)		

The second hypothesis evaluated perceptions of justice between traditional and specification grading approaches. The results of a paired-sample t-test demonstrate support for procedural, informational, and interpersonal justice but not for distributive justice (Table 7). Perceptions of procedural justice in specification grading were significantly different (and more positive) than perceptions of procedural justice in traditional grading approaches ($t_{(42)} = 5.388$, $p < 0.001$). Perceptions of interpersonal justice in a specification grading course were significantly different (and more positive) than perceptions of interpersonal justice in traditionally graded classes ($t_{(42)} = 5.382$, $p < 0.001$). Perceptions of informational justice in a specification grading course were significantly different (and more positive) than perceptions of informational justice in traditionally graded classes ($t_{(42)} = 3.694$, $p < 0.001$). However, there is no significant difference between perceptions of distributive justice in overall college grades and perception of distributive justice in the grade received in a specification-graded course ($t_{(42)} = 0.953$, $p = 0.346$).

Paired Sample	Mean (S.D.)	95% C.I.	t (df=42)	Significance (2-sided p)
Distributive Justice (General vs. Course-Specific)	0.204 (1.400)	-0.227, 0.634	0.953	0.346
Procedural Justice (General vs. Course-Specific)	0.804 (0.978)	0.503, 1.105	5.388	<0.001
Interpersonal Justice (General vs. Course-Specific)	0.634 (0.772)	0.396, 0.871	5.382	<0.001
Information Justice (General vs. Course-Specific)	0.577 (1.024)	0.262, 0.892	3.694	<0.001

The third hypothesis proposed that students perceive specification grading as an appropriate proxy for workplace evaluations. This hypothesis was supported (Table 8). Student familiarity with workplace evaluations demonstrated a positive and significant effect on student perception of specification gradings as a valid proxy for the same ($B = 0.305$, $p = 0.028$). Familiarity with workplace evaluations accounted for 33% of the variance in student perceptions of specification grading as an appropriate proxy for workplace evaluations.

Variable	B (S.E.)	t (sig.)
(Constant)	2.091 (0.387)	5.398 (0.000)
Familiarity with Workplace evaluations	0.305 (0.134)	2.278 (0.028)

Note: B: unstandardized coefficient; Dependent Variable = appropriateness of Specification grading as a proxy for workplace evaluations.

Attitudes toward Specification Grading

Students were asked at the midpoint and end of the semester the following question, “What do (did) you like or not like about the approach to grading in this course? Please explain with specifics.” Twenty-two students responded to the question at the semester’s mid-point, and 28 responded at the end of the semester. At the middle of the semester, 59% of the responses were moderately to very negative, and at the end of the semester, 61% had the same sentiment. The positive sentiment (moderately to very) changed slightly, from 41% at the semester’s mid-point to 39% at the end. Positive feedback provided by students explained the opportunity for autonomy and the ability to balance workload across all courses and other personal responsibilities. Some issues students had with specification grading were confusion over requirements and a lack of incentives to complete the work (Table 9)—other negatives related to the perceived effort for initial submissions and potential revisions.

Tone	Example Statements
Very or Moderately Positive (Midpoint = 41%; End = 59%)	<ul style="list-style-type: none"> • I really liked how we could choose our grades based on the number of assignments we completed. Some courses require a larger time commitment, so it was nice that we had the opportunity to choose our grades and only complete the necessary assignments to obtain that grade. For example, I had a lot of group assignments this semester, so it was nice that I was able to opt out of the group project for [course] and still receive the grade I wanted. • I loved the style of mimicking the real world. The use of double submissions was a dream to have. As it really does allow you to take risks and develop the work rather than hope its gold the first time. I wish this were in all my classes.
Neutral (not coded by NVivo)	<ul style="list-style-type: none"> • I liked that the instructions were very clear and there was a defined “minimum.” However, sometimes when schedules are busy, I wish I could get a 70 or sometimes even half credit and just move on. With this, it’s either all or none which can be hard. • I do not feel the grading structure is bad, and it seems more helpful, but it is more confusing in that it is not like your regular grading in other courses. It just takes a little more time in getting used to if it is your first time dealing with it.
Very or Moderately Negative (Midpoint = 39%; End = 61%)	<ul style="list-style-type: none"> • I do not like how rigid the grading is. No matter how well you do, if you miss three or four assignments, you cannot earn greater than a C. The team project is also done in a strange way. It is optional, but you cannot earn an A in the course without doing it. However, if you don’t meet the requirements for an A in any other category, the team project means nothing, and it was a waste of time. There are also no late submissions, so if you missed a due date, you could drop two letter grades. • I didn’t like how doing well in one category doesn’t carry over into the other grading categories. So if a student does very well on the tests but misses one too many classes, they could still receive a lower letter grade.

When asked if they would like to see this grading approach in other classes, the response was mostly positive, with 65% of the responses indicating they would like to see this approach used in other courses and 27% indicating that they would not like this approach used in other classes (Table 10). Two responses indicated that it depends on the instructor and the course.

Students who agreed that other instructors should use this approach liked the precise goals, clarity of the grade requirements, and clear connection between effort and the grade received. Students who did not like this grading approach did not like the opportunity for revisions; one commented on the lack of room for mistakes (even though revisions are allowed), while another commented on the dislike of having an opportunity to make revisions. Another student felt the approach to grading lacked the incentive to perform well.

Table 10	
ATTITUDES TOWARD USING SPECIFICATION GRADING IN OTHER COURSES	
Tone	Example Statements
Positive	<ul style="list-style-type: none"> • Yes, it allows student to set a determinable goal at the beginning of the semester and have a clear plan on how to reach that goal. • Yes, it makes students learn how to manage their time. • Yes, the class is not a “give me” A. But students who put in the effort can get the grade of their choice as long as they work for it.
Neutral	<ul style="list-style-type: none"> • I think it depends on the instructor and / or the subject matter. There are certain subjects that require a firm understanding of all aspects of the field to strive into it, engineering just as an example. In these scenarios a stricter grading criterion would probably be more optimal. • Only if they are as efficient with it as [instructor]. I feel as though it takes only a certain type of professor to be able to structure their assignments, quizzes, and exams the way in which she did.
Negative	<ul style="list-style-type: none"> • Very much no. Sometimes I have very tough weeks and I want to do the bare minimum to get by without losing my mind. I would rather receive a low grade such as a C for doing subpar work than have to have the added stress of redoing an assignment entirely for subpar work. • No, I did not like how your grade would drop significantly due to one mistake.

Grade-Oriented Behaviors

Students were asked two questions about the behaviors required to get a desired grade (“Briefly describe your understanding of how to get the grade you want in this course”) and the actual behaviors they engaged in to get their final grade (“What was the most important thing you did to achieve the grade you wanted in this course?”). After a manual inspection of student responses to these questions, it was apparent that, in general, students understood what was required to achieve their grade goal, as it was stated in the syllabus. A few students went beyond the syllabus requirements, describing other behaviors that led to their desired outcome, including accepting personal responsibility, being organized, meeting deadlines, and putting in the effort to get the desired grade. Enacted behaviors to achieve desired outcomes included attention to time management and organization, studying the course materials, taking personal responsibility for their effort, and choosing the work to complete based on the grade they wanted.

- “You work for the grade you want. The more modules and discussions you do, the higher your grade.”
- “To achieve the grade desired, it helped to read every [assignment] ahead of time and figure out which ones I could do best.”
- “The most important contribution I made to achieve my grade goal was to keep myself accountable with how many learning modules I could miss, attendance requirements, and the required test average. Keeping myself accountable to my A goal grade is how I was successful in this class.”

- “I strived to achieve a C in this class. I did the minimum work requirements needed to do such a thing.”
- “I monitored my assignments completed and that they met the course objectives in the pursuit to achieve the bare minimum. Seeing that it’s my final semester, I did not feel it was necessary to shoot for the A.”

Learning Impact

Finally, students were asked how the grading approach affected how well they learned the course content. The responses were mixed, with some students indicating no impact and others claiming the grading approach motivated them to learn (Table 11). Overall, there was a balance of positive (43%) and neutral (48%) responses, with only four students indicating a negative effect.

Tone	Example Statements
Positive	<ul style="list-style-type: none"> • I think it made me learn more and better. By eliminating the 100+ online assignments throughout the semester, you are forced to put more thought into every assignment. Meaning that you have to think deeper about the topic because each assignment feels and is more important to your grade. • It went very well with my learning. • A lot, I probably learned more about the content of the class with this grading approach since you have to pay attention to be able to complete the assignments.
Neutral	<ul style="list-style-type: none"> • I do not believe grading impacts learning. If an individual wants to learn the material, they will make time for it. • I don’t think it was the grading as much as the assignments. • The grading didn’t affect my learning much because even when I didn’t do certain [assignments] or discussion posts, I still read and learned the topics
Negative	<ul style="list-style-type: none"> • I just wanted to pass one way or the other. I stopped trying to focus on learning so much as I was worried about submitting the work on time. • It made me not care about the material but rather just get the work done and over with.

DISCUSSION

Specification grading in higher education has grown since Nilsen’s book was published in 2015. As a result, academics have investigated how specification grading relates to student attitudes and behaviors toward learning. This study contributes to the support for specification grading as a valuable approach to encouraging student mastery of course material and autonomy in the classroom. While the sample size is small, the results demonstrate that, in this instance, specification grading sufficiently discriminated between students who did and did not master the course material with positive and significant correlations between final course grades and exam averages in this sample. Students perceived the overall equity of specification grading to be

stronger than traditional grading approaches regarding procedural, informational, and interpersonal justice, but not distributive justice. Further, students perceived specification grading as a relevant proxy for workplace performance evaluations.

Student attitudes about the grading approach did not vary significantly over the semester. Some students like having control over their grades and being able to choose their desired grades. They appreciated each grade's clear guidelines and goals and liked that effort was rewarded. They also like that the grading approach is based on met or unmet grading and that the rubric is detailed and specific. They appreciate being able to highlight their knowledge beyond memorizing definitions.

However, some students disliked that the grading approach was confusing and different than how their other courses were graded. They found that meeting the grade requirements was more time-consuming and challenging in the specification-graded course, especially when specific assignments were challenging, or multiple learning modules were due simultaneously. Some students also disliked that there was no middle ground between getting full versus partial credit and that missing a few assignments affected their grades significantly. They found having optional learning modules to be demotivating. They also found the grading approach too compartmentalized and not necessarily motivational to push them to produce more than the minimum expected.

Students also shared mixed opinions about the pass-fail style for each assignment. Some students liked it because it eliminated subjectivity in grading, while others found it too strict. Some students appreciated the feedback, while others found it lacking, especially when passing or failing an assignment. At the end of the semester, students appreciated the flexibility and transparency of the grading approach, with some even expressing enthusiasm and satisfaction with the system. However, others have expressed dissatisfaction with certain aspects of the system, particularly the inflexibility of the grading scale and the uneven weighting of particular assignments.

Regarding the equity of traditional grading approaches versus the specification-based approach, students felt that specification grading was more procedurally fair than traditional grading approaches but no different in distributive justice. Further, the student felt the specification graded course allowed for increased interpersonal and informational justice than traditionally graded courses.

Practical Implications

Because the tests and assignments used in this specification grading approach were the same as would have been provided had the author used a traditional grading approach, the content or coverage of course material did not change, nor did the assessment of student learning. In this instance, the primary difference between the two approaches was allowing students to choose which assignments they wanted to complete based on their grade goal or the amount of effort they were willing to invest in the course.

Based on the student feedback (both positive and negative) and instructor experience, there are several implications to consider when adopting specification grading. Key takeaways of

using specification grading may be idiosyncratic, but these takeaways may be relevant for other instructors to consider.

- **Plan for revisions to the grading rubrics over multiple semesters.** It takes time and effort (and several iterations) to develop good grading specifications for each assignment and to develop an overall approach to grading that distinguishes “A” students from “B” students from “C” students. Both student effort and demonstration of content mastery should be included to ensure a clear distinction between the grading levels.
- **Teach students about the grading approach.** It takes time to “train” students on the grading approach, and instructors should allow for sufficient instructional time to explain the process and answer student questions.
- **Plan for additional grading time.** Giving students a chance to revise sub-par work requires the instructor to grade some assignments a second time, which will add to their workload.
- **Provide feedback at multiple points in the assessment process.** Explanations of grading included with the assignment instructions and feedback shared during assignment assessment reduce potential confusion about the grades received. Feedback should identify where student work is deficient and explain to the student how they can earn full points with a revision.
- **Break down large projects into multiple deliverables.** Have students submit large projects (e.g., research papers or team projects) in parts to allow them time to fix mistakes early so the final product is of higher quality than it would have been without the interim feedback. Each component should include clearly stated specifications to guide student work.
- **Illustrate to students how the final grade is affected by not submitting specific assignments.** Because this method was new to students, it was helpful to give examples of how to achieve each grade and show what happens when required assignments are not completed or do not meet the requirements.
- **Offer frequent feedback on progress toward final grades.** At certain times during the semester, share with students how they can determine their grade progress or post an interim grade. Additionally, indicate when students are no longer eligible for an A or B grade. It might be helpful to remind the students who did not submit the first assignment required for an A that they are no longer eligible for an A.
- **Be prepared to explain the benefits of this approach to students and administrators.** Many educators are reviewed annually by their college or university administrators, and it is essential to educate them on the benefits of specification grading and what the instructor is attempting to accomplish. Include the research on specification grading and steps taken by the instructor to educate students on the process and continuously improve the grading approach within annual performance reports.

Theoretical Implications

The motivation toward learning or receiving grades has been investigated for several decades. Scholars investigating student motivation have uncovered several interesting findings on the antecedents and consequences of these motivations. Students primarily motivated by learning focus on acquiring knowledge and skills and find learning intrinsically rewarding (Meyer et al., 2019; Pollio & Beck, 2000). On the other hand, students who are primarily motivated by grades focus on the results of their efforts (e.g., course grades) rather than the learning process (Pollio & Beck, 2000; Vallade et al., 2014). In other words, learning-oriented students seek mastery of the content, while grade-oriented students focus on their performance (Meyer et al., 2019).

Specification grading emphasizes mastery of course content and meeting performance outcomes, so both learning- and grade-oriented students were expected to be satisfied with the grading approach. In the current study, students indicated mixed perceptions of how the grading approach affected their learning. While many students mentioned that the grading system forced them to learn and study the material, some expressed concerns about focusing more on grades than authentic learning. Some students mention that the grading system helped them to understand the course content better by forcing them to apply the material to assignments, discussions, and quizzes. However, other students mentioned that the grading system made them less interested in learning the material and more concerned with finishing the work. Further research should be done to investigate the relationship between attitudes toward specification grading and student learning and grade motivations.

Limitations and Future Research Directions

The limitations of this study are typical of teaching innovation studies in that generalizability may be limited to the specific sample investigated. However, as with other case studies in teaching innovations, the student attitudes and perceptions presented here may benefit academics considering implementing specification grading in their courses. Knowing the possible responses may help academics develop their approach to specification grading that strengthens positive attitudes toward it.

Given the small sample size used in this study, generalizability of these results may be limited. Thus, it will be necessary to evaluate these hypotheses on a more extensive data set across multiple courses, semesters, or universities to increase general applicability of these findings. Conducting a systematic review of reports that focus on the outcomes of specification grading may be helpful. While there are many studies on individual applications of this approach to classroom evaluation, it may be helpful to quantify the relationships with student performance, learning, and attitudes across contexts. Doing so will provide academics interested in applying specification grading in their courses with a valid justification when administrative leaders question the efficacy of such an approach.

Future research should also explore instructor effort, feedback quality, the effect on learning outcomes, and the practical design of grading specifications. While these concepts were briefly discussed, more data must be collected across multiple contexts to develop a deeper picture of the effort involved with specification grading approaches.

CONCLUSION

This study aimed to evaluate student attitudes and behaviors in a specification-graded management course. The results show that specification grading does not significantly affect the expected alignment of final course grades with summative performance measures and may contribute to student autonomy and perceptions of grade-related justice in the classroom. This grading approach exposed students to an evaluation method like what they would experience in the workplace, which is where many business and management students go after graduation from college.

Practical implications have been provided to instructors who want to implement specification grading in their courses. Implementing specification grading will take multiple iterations and require the training of students, administrators, and other interested parties on the benefits and expected outcomes. Instructors should be aware of the time commitment before and during the course to ensure the students understand what is expected of them and how they will be assessed.

Finally, theoretical implications have been identified, along with directions for future research based on the current study's limitations. Future research on the relationship between grading approaches and student learning and grade orientation across multiple contexts is warranted and will expand the potential generalizability of these findings.

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