From Expectations to Experiences: Students' Perceptions of Specifications Grading in Higher Education

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Specifications grading is a form of alternative grading that emphasizes transparency, low stakes, student learning, and equity. It has attracted practitioners for its potential to enhance student motivation, and to remedy several challenges of traditional grading. Specifications grading has become increasingly popular, yet little is known about students' perceptions of and experiences with it. We examined students' predicted and actual experiences of specifications grading in courses across several disciplines at a research-intensive, public university in the United States. Particular attention was paid to how students perceive specifications grading to influence their motivations to learn. Most students expressed positive attitudes toward specifications grading both before and after experiencing it. Qualitative responses indicate that facets of motivation, including choice, value, and expectations of success, were important factors shaping students' perceptions. Based on these findings, we conclude with recommendations for practice for instructors who are interested in implementing specifications grading.

Alternative grading is a philosophical approach to evaluation that emphasizes educational equity; philosophical and ethical coherence; transparency; and student learning, engagement, and sense of belonging. Approaches to alternative grading are as numerous and diverse as the instructors who use them, including, among others, standards-based grading, contract grading, labor-based grading, ungrading (more recently known as collaborative grading), and specifications grading (Clark & Talbert, 2023). All arose to address in their own way the philosophical, ethical, mathematical, and practical problems of traditional grading (i.e., the calculation of a weighted average of numerical scores on assignments in a course to arrive at a course grade.) While alternative grading approaches have remained mostly on the edge of mainstream pedagogical practice, the COVID pandemic, which laid bare the inhumane and inequitable consequences of traditional grading (Clark, 2022; Feldman, 2019, 2020), intensified instructors' interest in adopting them (Budde, 2023; Saucier et al., 2022). In particular, specifications grading[1] ("specs grading" hereafter) is now among the most popular forms of alternative grading, yet little is known about students' perceptions of and experiences with this grading method. This paper describes students' predicted and actual perceptions of and experiences with specs grading across a diverse array of courses and disciplines at a research-intensive, public university in the United States. The paper also addresses the ways in which students perceive specs grading to influence their motivation to learn.

Specs grading first gained widespread attention and popularity with the publication of Linda Nilson's (2015) *Specifications Grading: Restoring Rigor, Motivating Students, and Saving Faculty Time*. A conventional description of specs grading is that it is a grading approach that evaluates students' work on transparently communicated criteria that align closely with learning objectives. Students' assignments are designated as either meeting specifications or not meeting specifications. To lower the stakes and focus on growth, a token system enables revisions or re-tries on assignments. Assignments are grouped into bundles for each grade. A student earns a grade by meeting specifications on all of the assignments within the bundle. Of course, the features of any grading scheme are flexible and may vary from instructor to instructor, so this description should be understood as a summary of typical specs grading features, rather than as a formal definition.

Early scholarship on specs grading explored the method's conceptual and theoretical underpinnings (Blodgett, 2017; Talbert, 2014), articulated why specs grading appeals to instructors and what common teaching challenges it can solve (Barre, 2016; Mittel, 2016), and explained how to design a specs grading system (Bonner, 2016; Leslie & Lundblom, 2020). Since this initial surge of "why" and "how to" literature, several studies have described the implementation of specs grading in specific courses, disciplines, and institutional contexts, and some studies have assessed the impact of specs grading on students' achievement of learning outcomes, their grades, and faculty workload. For instance, Rylaarsdam & Heinz (2016) reported increased student achievement on content and skills-based objectives in a specs-graded course relative to traditionally-graded biology courses, and greater achievement of competency benchmarks for struggling students. Prasad (2020) found that specs grading supported students in developing mathematical thinking skills and communicating mathematical ideas in writing, while Mirsky (2018) found similar improvements in students' technical writing skills. Howitz et al. (2021) observed that students in an organic chemistry laboratory course earned higher letter grades than students in previous traditionally-graded versions of the same course. Most authors refute Nilson's claim that specs grading saves faculty time and reduces workload, arguing that at best it requires an equivalent amount of time to traditional grading, and it improves the quality and effectiveness of that time because it is spent providing meaningful feedback rather than assigning points to student work (Earl, 2022; Sanft et al., 2021; Vitale & Concepcion, 2020).

Despite the growing literature base, scholarship focused on students' perceptions of and experiences with specs grading is still nascent. Students' perceptions are often reported second-hand, through instructors' assumptions about students' beliefs, attitudes, and emotional states. For instance, Blackstone & Oldmixon (2019) report having more substantive interactions with students about course content instead of interactions about performance in their political science courses, which they believe indicates a decrease in students' anxiety about grades. They thus infer students' posi-

tive experiences with specs grading. End-of-course student evaluations of teaching have shown positive student responses to the flexibility of specs grading and its emphasis on learning rather than performing in a communications course (Elkins, 2016) and a psychology course (Lillard & Taggart, 2022). Other instructors describe students who appear to be more motivated by specs grading than by traditional grading (Vitale & Concepcion, 2021), students who appreciate the transparency and fairness of specs grading systems (Jones, 2020; Shields et al., 2019), and students who "likely experienced lower levels of 'grade anxiety'" than in courses that use traditional grading methods (Quintana & Quintana, 2020, p. 531).

A few studies have gauged students' perceptions of specs grading directly through surveys. The majority, though not all, of these studies report positive responses from students. In eight undergraduate cell biology courses, most students agreed that specs grading helped them to achieve a range of comprehension and skill-based learning objectives (Katzman et al., 2021). In philosophy courses, students found specs grading to be "at least as good or better" than traditional grading when it comes to motivating their learning (Earl, 2022, p. 25). In an undergraduate dietetics course, when asked to describe what they like about specs grading, students responded that they liked specs grading because it lays out expectations clearly, reduces the potential for instructor bias to influence grades, and gives students a sense of control by closely tying grades to their efforts (Pope et al., 2020). And finally, in several psychology courses across three institutions—varying in size, rank, and public/private designation—students reported lower grade stress, lower anxiety about meeting course learning goals, and a greater sense of control over their success in courses that used specs grading (Strickland-Hughes et al., 2023).

Not all studies report positive student perceptions of specs grading. Pope et al. (2020) reported that, although students had generally favorable impressions of specs grading, students struggled against the ways they have been socialized to think about grades: students expressed anxiety when assignments were returned without numeric or letter grades assigned to them, and they found it difficult to overcome the habitual reliance on grades as a form of extrinsic motivation to complete their work. Sanft et al.'s (2021) study of specs grading in several computer science courses showed that, while no students disagreed with the statement that specs grading helped them learn the material better, a sizable minority of students nevertheless disliked the approach to grading, for reasons left unspecified.

Despite these few negative responses, the small collection of studies that gauge student responses to specs grading report largely positive experiences. It is impossible to disentangle the causes of negative responses: students appear to react negatively to specific implementations rather than to specs grading as a concept. For example, some students have expressed concerns about whether a particular specs grading approach adequately accounts for variations in individual contributions to group or collaborative projects (Martin et al., 2021); others felt that the threshold for meeting expectations on an assignment or the criteria for completing a particular grade bundle was set too high (McKnelly et al., 2021); or they disliked a system that offers insufficient flexibility and choice (Pope et al., 2020). None of these complaints is irremediable, and all critique the idiosyncratic design and implementation choices of individual instructors rather than the fundamental principles of specs grading.

The students cited in these studies explain that specs grading reduced or (in a few cases, increased) their grade anxiety, clarified (or rarely, obscured) the criteria for success, offered them choices of how much and what kinds of work to complete, focused their attention on learning, and gave them more control over their grades. These largely positive student responses to specs grading diverge significantly from the well-documented negative effects of traditional grades on students' motivation to learn, their enjoyment of school, and their willingness to complete challenging tasks (Butler & Nisan, 1986; Chamberlin et al., 2018; Kohn, 2012; Michaelides & Kirshner, 2005; Schinske & Tanner, 2014).

These stark differences in students' reactions to grading practices heavily implicate students' motivation. The expectancy-value theory of motivation posits that motivation is a product of how much one values a particular task or outcome, and one's belief that one is capable of accomplishing it (Wigfield & Eccles, 2000). A student who both highly values an academic task and feels confident in their ability to succeed at it is likely to feel highly motivated to learn. Autonomy (being able to make choices independently) is another central component of motivation (Ryan & Deci, 2002). When students have opportunities to make choices about what and how they learn, they are more likely to value and be interested in what they are learning, more likely to feel a sense of control over their learning, and therefore more likely to experience high motivation to learn. Though students may not use these exact words—"value," "expectancy," "autonomy," or "confidence"—the significance of these concepts to their motivations in the classroom is evident in their descriptions of their perceptions of and experiences with specs grading. Thus, studies of specs grading should address the relationship between students' experiences of specs grading and their sense of motivation in the classroom, and whether this relationship demonstrates an improvement over traditional grading practices.

THE PRESENT STUDY

Specs grading is a relatively recent development in the world of grading innovation. Most literature on it addresses the impacts on students' learning outcomes and instructors' workload and experiences within specific courses, with only occasional attention to student perceptions. A deeper understanding of students' views, including their reactions to specific features of specs grading (such as revision, single-level rubrics, tokens, grade bundles, etc.) is needed. In the present study, we examined students' predicted and actual experiences of specs grading across a range of course types, levels, sizes, and disciplines. Additionally, we explored how students perceived specs grading to influence their motivations to learn.

METHOD

Features that Characterize Specs Grading in the Present Study

The boundaries between different types of alternative grading are porous. Specs grading schemes can vary enormously depending on instructors' goals, situational constraints, instructional and institutional contexts, and many other factors (Streifer & Palmer, 2023). To understand students' perceptions and experiences of specs grading, we first needed to establish a consistent set of features that characterize specs grading. The courses that participated in this study shared the following grading scheme characteristics, even though they implemented them differently:

- Assignments were grouped into grade-level bundles. The bundles varied in the quantity of assignments, difficulty of assignments, or both
- Single-level rubrics described the criteria for success on all assignments
- No points or letter grades were given on individual assignments
- To complete a grade bundle, students had to meet specs on all assignments within that bundle
- Some opportunities for revision or re-tries on assignments were offered
- Some form of token system was implemented to limit the number of revisions

These components adhere closely to the "original" elements of specs grading as articulated by Nilson (2014). We acknowledge the artificiality of the boundaries we have drawn around specs grading, as we have seen systems that hybridize specs grading with contract grading, standards-based grading, and traditional grading, among others. Instructors may justifiably include other features and still call their system specs grading. For the purposes of this study, these features are what students are reacting to when they share their perceptions of specs grading as an alternative grading practice.

Study Design and Data Collection Method

We used a convergent parallel mixed methods approach, where the quantitative and qualitative data are collected simultaneously, analyzed separately, and reported together in the results (Creswell, 2014). Data were collected using a pre/post survey; students in participating courses were invited to complete the pre-survey after the first day of class, and the post-survey after final grades had been submitted for the semester. Instructors were asked to refrain from explaining their grading system on the first day of class so that students could complete the pre-survey with as few preconceptions of specs grading as possible. The study was approved by the university's Institutional Review Board for Social and Behavioral Sciences (IRB-SBS; Protocol #2943).

Participants

Study participants were recruited from 23 undergraduate courses (18 unique courses) taught by 12 different instructors between Spring 2018 and Spring 2021 at a single large, public research university in the Middle Atlantic United States. The course disciplines included English, religious studies, nursing, psychology, history, anthropology, Spanish, astronomy, Chinese, engineering, and interdisciplinary liberal arts seminars. Four of the courses were lower-level undergraduate courses (labeled 1000-level at the

Table 1. Study Instrumentation

Timing	Construct	Question Example	Response
Pre	Hypothetical Comfort with Elements of Specs Grading	"Rate your level of comfort if your professor hypothetically were to… [e.g., Offer you multiple opportunities to revise your assignments]."	6 items on a 6-point scale from "very uncomfortable" to "very comfortable"
Pre	Past Experience with Specific Features of Specs Grading	"Indicate whether you have actually had professors do the following… [e.g., Offer you multiple opportunities to revise your assignments]" and "How did this experience impact your learning?"	6 items, yes/no/unsure, followed by open-ended if "yes"
Pre/Post	Holistic Specs Grading Rating	[Pre, before class experience, following a description of specs grading] "How much does specifications grading appeal to you?" and "Please explain your response." [Post, following class experience] "Please rate your overall impression of specifications grading." and "Please explain your response."	[Pre] 10-point scale from "not at all" to "very much," followed by open-ended [Post] 10-point scale from "very negative" to "very positive," followed by open-ended
Pre/Post	Perceptions of Specs Grading (Students' predictions pre-experience and reactions post-experience)	[Pre, before class experience, following a description of specs grading] "Indicate your agreement with the following statements. Based on the description of specifications grading… [e.g., I think I would learn more in a class that uses specifications grading, compared to courses that use traditional grading]." [Post, following class experience] "Indicate your agreement with the following statements. [e.g., I think I learned more in this course compared to other courses I've taken that use traditional grading]."	11 items on a 6-point scale from "strongly disagree" to "strongly agree"
Post	Transparency	"The grading system for this course was [X] transparent than for courses that use a traditional grading system."	5-point scale from "much less" to "much more"
Post	Course Expectations	"In what ways was the specifications grading system helpful/unhelpful for setting course expectations and determining final grades?"	2 items, open-ended
Post	Motivation	"In what ways did the specifications grading system impact your motivation(s) to complete the assigned coursework?"	open-ended
Post	Peer Advice	"What advice would you give to a peer who is considering enrolling in a class that uses specifications grading about whether to enroll and how to succeed in that course?"	open-ended
Post	Adoption Recommendation	"Overall, would you recommend that more instructors adopt a specifications approach to grading?" and "Please explain your answer."	yes/no, followed by open-ended
Post	Grade Satisfaction	"Were you satisfied with your grade in the course relative to the amount of effort you put in?" and "Please explain your answer."	yes/no, followed by open-ended

participating institution), 8 were lower-level intermediate undergraduate courses (2000-level), 5 were upper-level intermediate undergraduate courses (3000-level), and 1 was an upper-level advanced undergraduate course (4000-level). Enrollment varied from small seminars of 11 students to courses as large as 72 students.

From the sample of 581 students, 203 completed the pre-survey (35% response rate) and 56 completed the post-survey (10% response rate). Just 22 students completed both the pre- and post-surveys and provided the code necessary to link their pre- and post-survey responses (4%). Demographic data for students was not collected. Given the response rate and distribution of responses across the participating courses, data was not disaggregated by specific courses. We also refrained from disaggregation to avoid the potential to reveal or even guess at student identities in courses with small enrollments. Investigating the differences in student perceptions of specs grading across different courses is a direction for future research.

Instrumentation

Surveys contained a combination of close-ended Likert questions and open-ended questions that we designed to capture students' comfort and experience with practices typical of specs grading and perceptions of specs grading. See Table 1 for an overview and Appendix A for the full surveys.

DATA ANALYSIS

Likert survey questions were analyzed using descriptive statistics, as well as inferential statistics to examine median change over time for the small subset of participants who completed both the pre- and post-survey (i.e., a Wilcoxon signed rank test, with $p < .05$ as the criteria for significance). Researcher A (Streifer) independently analyzed the pre-survey qualitative data and Researcher B (Palmer) independently analyzed the post-survey qualitative data inductively to identify themes and develop a preliminary coding scheme. The researchers discussed and refined their respective coding schemes and then re-analyzed their data to ensure proper coding. The frequency of each code was determined by summing similarly coded responses. Researcher C (Taggart) coded 20% of pre- and post-survey responses and interrater reliability was excellent, Cohen's $\kappa = .96$ (presurvey) and .95 (postsurvey). Any discrepancies were resolved through discussion. For open-ended items in the survey, percentages represent the percent of students who provided responses for that item, rather than percent of the total number of students who participated in the survey. Percentages may add up to more than 100 because open-ended responses could be assigned multiple codes (for example, a single response could be coded for both "transparency" and "motivating" if it addressed both themes).

RESULTS

Using quantitative and qualitative data, we examined students' predicted and actual experiences of specs grading and how they perceived specs grading to influence their motivation to learn.

Predicted and Actual Experiences of Specifications Grading

Hypothetical Comfort with Features of Specifications Grading

We first examined how comfortable students were with various features of specs grading (see Table 2) *before* they experienced it in the classroom. Students' hypothetical comfort tracked with experience: the more commonly experienced teaching techniques (not exclusive to specs-graded courses) were also the ones with which students expressed the most comfort.

Table 2. Descriptives for Students' Hypothetical Comfort with Practices Characteristic of Specs Grading (n = 203)

Rate your level of comfort if your professor hypothetically were to…	Median	Range
Offer you multiple opportunities to revise your assignments.	6	2–6
Allow you to choose from a range of assignments rather than forcing you to complete a set of predetermined assignments.	5	1–6
Give you a list of requirements needed to earn a specific grade and then let you choose which grade you'd like to work toward.	5	1–6
Evaluate all assignments on a meets expectations/does not meet expectations basis, rather than assigning a letter grade.	5	1–6
Provide lots of feedback on each assignment in a course, but no grades.	4	1–6
Invite students to collaboratively determine the grading criteria for one or more assignments.	4	1–6

Of the six hypothetical scenarios, respondents felt most comfortable with the idea of being offered multiple opportunities to revise their assignments. They were least comfortable with the idea of their professors providing lots of feedback on each assignment in a course but no grades, and inviting students to collaboratively determine grading criteria on one or more assignments. Yet, of the few students who had previously experienced the opportunity to collaboratively determine grading criteria (n = 30 of 203; 15%), two-thirds reported a positive reaction in their open-ended justification for their rating; they reported feeling a greater sense of empowerment in their learning and accountability to their peers, and a greater sense of fairness and transparency in the grading criteria. Similarly, of the students who had received feedback but no grades on past assignments (n = 40 of 203; 20%), 80% reported a positive response: students described feeling less grade anxiety and a deeper focus on their learning. These results suggest that, although lack of familiarity may serve as a possible foundation for students' discomfort with specs grading, many of the most common specs grading practices are ones that students report appreciating and feeling comfortable with after they have experienced them.

Perceptions of Specs Grading Before and After Experiencing It

We next examined how students felt about specs grading, before and after experiencing it. We report a summary of the presurvey and postsurvey independently, and then explore the experiences of the small subset of students for whom we have paired pre/post data.

Overall, even before students experienced specs grading, they found it appealing (*Mdn* = 8 out of 10). Respondents' open-ended justifications for their rating were "fully positive" (52%), "fully negative" (11%), or "ambivalent" (a mix of positive and negative feelings; 24%). Respondents suggested that they believed specs grading would (in order of highest to lowest response frequency):

- *translate their efforts to their desired grade* (coded in 19% of responses): "I like essentially being able to control your grade by the amount of effort you put into the class."
- *increase transparency* (18% of responses): "Specification grading seems to be set up for students to succeed in the course and a clear understanding on how and why they would receive specific grades."
- *give them more choice and control* (17% of responses): "I like how we would have the ability to earn the grade of our choice and how our grade earned will have a clear and comprehensive reason as to why we earned such grade."
- *orient their focus toward learning* (16% of responses): "I like that this system seems to place more emphasis on learning than getting a good grade…"
- *be less stressful than traditional grading* (15% of responses): "It makes learning less stressful because I can focus more on completing it to my best ability and that being good enough."
- *give them opportunities to revise their work* (14% of responses): "Additionally, having room for revision allows me to fix my mistakes and hopefully not make them again."

The frequency of negative sentiments toward specs grading in the presurvey was low; the most frequently occurring negative sentiment (though still only 8% of responses) was that specs grading might demotivate students and disincentivize them from trying their hardest to earn the highest grade they possibly could (e.g., "I worry that some students will be unable to motivate themselves to achieve the grade they deserve," and "It allows people to sort of slack off in assignments and doesn't hold student [*sic*] accountable."). Interestingly, these respondents tended to imagine other students "slacking off" rather than describing themselves as someone who would struggle to stay motivated in a specs grading system.

Other respondents (7% of responses) expressed a concern that specs grading would increase student workload (e.g., "I worry that the amount of work for getting the best grade possible will be too much for my current schedule," and "there is a possibility for student burn-out having to frequently revise assignments."). Another 6% liked the idea of specs grading in theory, but felt that social pressure to earn high grades rendered the concept of "choice" in grade bundles a false one (e.g., "I could feel pressured to do the bundle that grants me the highest grade, even if I don't have time…choosing a bundle that doesn't allow for the highest grade could be seen as being lazy..."). Finally, 5% of responses expressed non-specified anxiety with the concept of specs grading, and another 5% thought it sounded confusing or complicated.

At the end of the semester, students' overall impression of specifications grading continued to be positive (*Mdn* = 8.50 out of 10). When asked whether they were satisfied with their final grade relative to the amount of effort they put in, 39 out of 42 respondents (93%) indicated "Yes". Students generally felt as positively, or even more so than they predicted, about the specs grading experience (Table 3). They agreed that their specs-graded course, when compared to their other course experiences, helped them better understand the instructor's expectations, gave them more freedom to learn in ways that appealed to them, allowed them more say in how their work was evaluated, and gave them more choices in what work they completed and how they completed it. They felt confident about their grade and believed they learned more than they would have under a traditional grading scheme. They somewhat agreed that the specs grading structure led them to work harder than they normally would in other courses. They felt they earned a higher grade and felt less anxious about their grade than they would have in courses using traditional A-F grading schemes.

Qualitative data support these quantitative findings. When asked about ways the "specifications grading system [was] helpful for setting course expectations and determining final grades,"

Table 3. Descriptives for Students' Predicted and Actual Feelings About Specs Grading

Item*	Presurvey		Postsurvey	
	Median	Range	Median	Range
…more freedom to learn in ways that appeal to me...	5	1–6	6	1–6
…more choices about the kind of work I do...	5	1–6	6	1–6
…appreciate having some choice in the assignments…	5	2–6	6	1–6
…more of a say in how my work is evaluated…	5	1–6	5	1–6
…appreciate the opportunity to collaboratively determine the grading criteria for one or more assignments…	5	1–6	5	1–6
…work harder than I normally work...	4	1–6	4	1–6
…learn more...	4	1–6	5	1–6
…more confident about my course grade…	5	1–6	6	1–6
…more anxious about my course grade...	3	1–6	2	1–6
…earn a higher grade...	5	1–6	3	1–6
...better understanding of a professor's expectations for success.	5	1–6	6	1–6

*** *Note***. Item stem varied between the pre- and post-surveys to indicate hypothetical responses and retrospective reflections, respectively; see Table 1 for an example. npresurvey = 197-199, npostsurvey = 56

respondents claimed specs grading (in order of highest to lowest response frequency):

- *made expectations transparent* (30% of responses): "I loved spec grading because it was clear what the expectations were and exactly what you had to do for each assignment."
- *better aligned effort to grades* (23% of responses): "I understood the amount of effort I needed to put in in order to receive the grade I wanted."
- *made grades transparent* (17% of responses): "As for determining final grades, it was clear exactly what had to get accomplished in order to receive a certain grade from the beginning of the class, which created a major sense of transparency."
- *decreased anxiety* (10% of responses): "The fact that not every little thing was going to be dissected and graded definitely made my experience in this class a lot more enjoyable…I knew that as long as I fulfilled the course requirements, my grade would be fine..."
- *provided choice/freedom/flexibility* (8.5% of responses): "I thought it gave more freedom on our end to understand where we were falling in the grading spectrum, which allowed us to prioritize what was important to us at the time."

Even though the majority of respondents had positive perceptions of specs grading, they also identified some features which caused them some frustration, confusion, or uncertainty. The most common critical responses to the question "In what ways was the specifications grading system unhelpful for setting course expectations and determining final grades?" centered on confusion about the specifications for individual assignments (e.g., "I found that sometimes the grading rubric was a little vague which made me unsure if I was meeting expectations," and "Some of the specifications required to meet spec within the assignment were unnecessary and did not contribute to my overall learning growth." 19% of responses). Respondents also expressed frustration and uncertainty about the perceived difficulty of assessing their grade throughout the term (e.g., "Sometimes I was unsure about where I stood in the scheme of how my grades were in relation to how much more I had to do for my desired grade," and "It's hard not to have numerical values given as grades throughout the semester since students are so used to that. It made me feel uneasy and worried about my grade when I shouldn't have been." 17% of responses). Some respondents mentioned the difficulty of understanding the details of the grading bundles and choices available to them through the token system (6% of responses), as well as excessive and unreasonable assignment expectations (6% of responses). Others noted being anxious about the impact of final exams or projects on their course grade since these end-of-term assessments often have an outsized impact in many specs grading systems (6% of responses).

Twenty-two participants rated the appeal of specs grading at the beginning of the semester (*Mdn* = 7, range 4–9) and their overall impression of specs grading at the end of the semester (*Mdn* = 8, range 2–10), allowing for within-subjects comparison. Fourteen rated specs grading more positively at the end of the semester, 5 rated it more negatively, and 3 did not change their ratings. There was not a significant median increase in rating at the end of the semester compared to the beginning, $z = -1.92$, $p = .055$.

Recommendations for Instructors and Future Students

Based on their experiences, students shared whether they "would recommend that more instructors adopt a specifications approach to grading." Thirty-nine out of 47 respondents (83%) indicated "Yes." Analysis of their qualitative explanations revealed seven primary considerations influencing their recommendation (in order of highest to lowest frequency): specifications grading is less stressful for students, leads to better/more learning, is more transparent, matches effort to grade, is more objective, and students will be more motivated and work harder.

Several of the respondents who indicated they would not recommend that more instructors adopt specs grading felt specs grading is "only applicable to certain classes" (9%), particularly humanities but not STEM courses. Two respondents also echoed frustrations and confusion about the mechanics of the system implemented in their specs-graded course.

When asked for advice they would give to a peer who is considering enrolling in a class that uses specs grading, respondents offered four broad suggestions:

- *Ensure you plan ahead, put in effort, do all the work, and don't get behind*: "I would tell them to get done with as many of the requirements as possible when they have down time, that way they can focus more on the class and other things when they get busy."
- *Ensure you understand the requirements and specifications:* "The way to succeed is to read the rubrics/specifications and make sure your assignments hit every part of them!"
- *Ensure you take advantage of the grading system:* "I would recommend students not be afraid to use tokens in the course. The tokens are there to help you, so take advantage of them."
- *Ensure you're passionate about the course*: "If you are considering enrolling in a class with specifications grading, you have to make sure that you are passionate in the course work. Otherwise, you won't feel motivated to complete the work and specifications grading would be pointless."

Student Motivation Following Specifications Grading Experience

When asked at the end of the semester about the ways "the specifications grading system impact[ed] motivation(s) to complete the assigned coursework," respondents claimed specs grading increased their motivation to (1) earn a higher grade (e.g., "I knew exactly what had to be done in order to earn my desired grade, instead of things being up in the air, which made me more motivated to get done what I needed to do" (31% of responses)) and (2) work harder and produce better work (e.g., "It allowed me to put in more effort in certain assignments and helped me concentrate on the quality of the end product, rather than on my grade" (21% of responses)). The reasons students give for feeling increased motivation tracks with the expectancy element of the value-expectancy theory of motivation: knowing what it takes to earn a grade increased the student's expectation of success, and strengthened their belief that their efforts would lead to success. A handful of respondents felt specifications grading increased their motivation but only *until* they earned their desired grade: "I was motivated to do all of the work until I reached the minimum

number of a category to meet specifications overall. By the end of the semester, when I had a lot of work for other classes as well, spec grading made me less inclined to do extra homework for the class even though I felt like it would be good practice."

Few respondents (9% of responses) indicated that their motivation decreased because of the specs grading system. Their responses centered on the demotivating nature of not having "truly imminent deadlines" and the vagueness of "meets spec/does not meet spec" criteria. Likewise, a few respondents claimed the specs grading system had no impact on their motivation, mostly because they identified as being "self-motivated" with an already "strong work ethic."

Supporting motivation, respondents indicated feeling less stress (e.g., "I found there was less pressure, which made it much easier to complete the assignments on my own time, making me much more motivated to do them") and more choice (e.g., "I feel more intrinsically motivated because I am the one who chose to complete the assignments. Also, in choosing a certain path, I felt like I wanted to try to get the most out of the assignments because I was the one who decided to complete them."). This reduction of stress may enable increases in students' expectancy, while the availability of choice may strengthen students' sense of value in the work they complete because they can choose work that interests and appeals to them.

DISCUSSION

In her foundational book describing specs grading, Nilson (2015) claimed that specs grading would (among other effects), motivate students to learn, motivate students to excel, reduce students' stress, minimize conflict between faculty and students, and make expectations clear (pp. 9-12). Early adopters of specs grading shared these goals, along with a desire to make grades meaningful, accurate representations of students' learning. For example, in his blog post, Mittel (2016) writes that he hated that traditional grades "often work as an obstruction for learning," and one feature he appreciates about specs grading is that "assignments are designed to demonstrate that students have achieved the course's specific learning goals." Similarly, Barre (2016) describes specs grading as producing grades that are far more intelligible and fairer to students, thereby satisfying two of her three goals for grading schemes - that they be "meaningful, moral, and manageable."

Scholarship on individual courses that implement specs grading bear out many of Nilson's and early adopters' predictions in practice. To offer just two representative student comments, in MPA (master's in public administration) courses, one student cited increased motivation: specs grading "just makes you want to do more," while another cited motivation, stress reduction, and an increased sense of control: "[specs grading] minimized the stress I typically feel throughout the semester. It is simple, easy to keep up with, and gives me a sense of control of my own destiny (which in turn motivates me to do the best I can)" (Jones, 2020).

Overall, the perceptions of specs grading students shared in this study align well with both Nilson's claims and the results of prior scholarship. Theoretical constructs of motivation that center expectancy and value (Wigfield & Eccles, 2000) and autonomy (Ryan & Deci, 2002) and research on the benefits of transparency (Winkelmes et al., 2016) support Nilson's predictions, and students' responses in both the pre- and post-surveys reveal the centrality of motivation for students as well. Specs grading impacted both their projected and actual senses of motivation in the classroom. The elements of expectancy, value, and autonomy are clearly visible in the reasons students offer for liking both the idea and the experience of specs grading. Increased transparency, a closer alignment of effort to grades, and the opportunity to revise work are features of typical specs grading schemes that can elevate students' expectations of success. Specs grading may also increase students' senses of value and autonomy in the classroom by offering the freedom to choose types and quantities of assignments, allowing them to focus on the work that most interests them. Students both predicted and experienced that specs grading would decrease their anxiety about grades and train their attention on learning. The subjective experience of lower grade anxiety may be connected to an increased sense of confidence or expectancy, while the shift in attention to learning may indicate an increase in students' valuation of learning over grades.

Happily for instructors, the attitudes and approaches to learning that instructors typically wish to see in their students are the same as the reasons students provide for appreciating specs grading and recommending it to their peers. It is a pleasure to teach students who are highly motivated and engaged, who focus on their learning and the quality of their work rather than their grades, and who feel confident that they understand the criteria by which their work will be assessed. Instructors also enjoy teaching students who cultivate curiosity about the course content, who plan ahead and pace themselves in their work, and who seek to clarify their understandings of the course requirements and grading schemes, all of which are behaviors that students in the study advised their peers to engage in.

The study also shows that specs grading is likely to decrease common challenges and tensions in student–instructor relationships. Students recommended specs-graded courses to their peers because they perceived the grading as objective and saw a close correspondence between their efforts and their grades. Thus, specs grading's potential to support students' comprehension about the pathways to earn grades bodes well for remedying grade complaints – one of the most fraught and unpleasant elements of teaching and learning for students and instructors alike.

LIMITATIONS

The study has several limitations; therefore, we caution against generalizing its findings to all instances of specs grading. Chief among these limitations is that we were only able to match 22 pre/post surveys. Because of the low post-survey response rate, and low number of paired responses, we cannot identify pre/post trends among respondents (for example, we cannot make a statement such as, "students who said X in the pre-survey were more likely to say Y in the post-survey"). We can only draw general conclusions about changes in students' perceptions of specs grading across the entire population of respondents.

We used a robust and somewhat rigid definition of specs grading. Instructors who implement specs grading in ways that deviate from this strict definition may find that their students' perceptions of specs grading do not align with the perceptions reported in this study.

Related to this rigid definition, the fidelity of implementation will have a strong impact on students' perceptions. Specs grading is not an inherently good or effective grading method; like any grading system, its impacts depend on its implementation.

Anecdotally, the authors have reviewed many syllabi that contain poorly constructed specs grading systems with one or more of the following flaws: the syllabi do not articulate learning objectives or the specs are misaligned with learning objectives; the specs design is so complicated as to be nearly incomprehensible; they claim to use specs grading but in fact use another grading system or a hybrid of systems; they disguise a points-based system in a specs grading "costume" through use of common specs grading vocabulary ("bundles," "tokens," etc.). Given that the quality of specs grading systems can vary widely, students' responses to specs grading should always be interpreted in relation to the specific system students experienced.

RECOMMENDATIONS FOR PRACTICE

As instructors who have taught courses that use specs grading for many years, and as educational developers who have supported instructors in designing their own specs grading systems, we encourage instructors to engage in the following practices when they teach specs-graded courses to heighten students' senses of motivation and expectations of success:

- Help students understand the specs system and the consequences of their choices within that system. This can be done through required office hour meetings early in the semester, or by talking through fictional scenarios of student performance in class. Establishing this understanding will enable high student expectancy.
- Clearly articulate the specs for each assignment and help students understand them through annotated examples, class norming sessions, and class-generated rubrics.
- Closely align the specs, purpose, and task of each assignment to the learning objectives for the course. This close alignment can raise student motivation through making the value of each assignment visible, and it can motivate students to focus on learning because achieving the learning objectives naturally leads to earning their desired grade.
- Provide a mechanism that enables students to track their progress throughout the semester. (Few LMS gradebooks are specs grading-friendly, so a grade-tracking document or spreadsheet can be a useful substitute).
- If developing a token system, ensure that learning activities and assessments cannot be circumvented with tokens, particularly when they are necessary to meet learning objectives.

Educational developers who support instructors should incorporate their understanding of specs grading and motivation into programming about designing efficacious, equitable, and learning-supportive grading schemes. As educational developers who have facilitated many programs and individual consultations about specs grading, we have many recommendations, which we summarize here:

- Grading practices are most effective and learner-centered when they are philosophically consistent and values-driven. Thus, programs about specs grading (or indeed, any alternative grading method) should engage instructors not only in the question of "how?" but also "why?" and "what pedagogical goals would specs grading serve?"
- Prior to engaging with alternative grading, educational development programming should introduce instructors to backward-integrated course design (Wiggins & McTighe, 2005), transparency (Winkelmes, et. al., 2016), and educative assessment (Wiggins, 1998).
- Encourage participants to reflect on who their grading scheme design decisions will benefit, and who they might not benefit. Prompt participants to consider the forms of support they will offer students to understand the grading scheme and succeed within it.
- Don't claim that there is one right way to do specs grading (or indeed, any alternative grading practice), or suggest that specs grading is a "one size fits all" method that works in every context. Programming on specs grading should accommodate differences in implementation, and at the same time help instructors understand the impacts of their implementation choices.
- Devote attention to instructors' teaching context and their readiness to implement alternative grading. The specifications grading readiness assessment can guide instructors to make choices that suit their interests, needs, and contexts (Streifer & Palmer, 2023).
- Remind instructors that they have lots of choices available to them whenever they design any grading scheme - over 15 million, in fact! (Palmer & Streifer, 2022). Instructors can experiment across many different characteristics (assessment types, revision opportunities, flexibility, grade transparency, etc.) to make incremental changes that gradually produce the desired results in terms of supporting student learning and motivation; facilitating transparency and mutual comprehension between instructors and students; and leading to more equitable outcomes.

While it is true that students reported largely positive perceptions of specs grading, found it motivating, and recommended that instructors adopt the practice, it would nevertheless be inaccurate to claim that specs grading is a panacea for all grading problems, or that all students feel equally motivated by it. Before adopting specs grading, instructors should consider how the relationship between specs grading and students' motivations will impact their course design and teaching practices. By engaging in this reflection, instructors can make informed decisions about their grading practices with the intent to maximize students' motivation, learning, and wellbeing.

CONCLUSION

Overall, we believe the most notable findings of our study are 1) the continuity of students' largely positive views of specs grading before and after they experienced it, and 2) that students' reasons for appreciating specs grading align very closely with instructors' reasons for implementing specs grading as documented in literature. Students agreed that, compared to traditionally-graded courses, specs grading helped them better understand the expectations for success, gave them more choices about the kind of work they did and more freedom in how to learn, and allowed them to feel more confident about their grades. They even agreed that they had learned more in their specs-graded courses. This close alignment between instructors' pedagogical goals and students' perceptions should strengthen instructors' confidence that, when carefully implemented, specs grading can increase clarity, reduce students' stress, and increase their motivation to learn.

NOTES

1. For a primer on both the philosophical underpinnings and characteristic components of specs grading, see Streifer & Palmer (n.d.), "Alternative Grading: Practices to Support both Equity and Learning": https://teaching.virginia.edu/resources/alternative-grading-practices-to-support-both-equity-and-learning

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APPENDIX A: TEXT OF PRE- AND POST-SEMESTER STUDENT SURVEYS

Pre-Semester Survey Questions

[Block: perceptions and experiences of typical specifications grading practices]

Rate your level of comfort if your professor *hypothetically* were to:
(1 is very uncomfortable and 6 is very comfortable)

- Allow you to choose from a range of assignments rather than forcing you to complete a set of predetermined assignments.
- Provide lots of feedback on each assignment in a course, but no grades.
- Give you a list of requirements needed to earn a specific grade and then let you choose which grade you'd like to work toward.
- Invite students to collaboratively determine the grading criteria for one or more assignments.
- Offer you multiple opportunities to revise your assignments.
- Evaluate all assignments on a "meets expectations"/"does not meet expectations" basis, rather than assigning a letter grade.

Indicate whether you have *actually* had professors do the following (yes, no, not sure): *For any "yes" answer, follow up with, "How did this experience impact your learning?"

- Allow you to choose from a range of assignments rather than forcing you to complete a set of predetermined assignments.
- Provide lots of feedback on each assignment in a course, but no grades.
- Give you a list of requirements needed to earn a specific grade and then let you choose which grade you'd like to work toward.
- Invite students to collaboratively determine the grading criteria for one or more assignments.
- Offer you multiple opportunities to revise your assignments.
- Evaluate all assignments on a "meets expectations"/"does not meet expectations" basis, rather than assigning a letter grade.

[Block: Student beliefs about grades]

Indicate your level of agreement with the following statements: (1 is strongly disagree and 6 is strongly agree) In general…

- The grade I earn in a course depends on the amount of effort I put in.
- The grade I earn in a course depends on the strategies I use to do my work.
- Greater effort always translates into higher grades.
- When I put more time into my schoolwork, I earn higher grades.
- I don't have much control over my grades, regardless of how much effort I put in.
- Lots of effort does not necessarily translate into earning high grades.
- My grades are based on the subjective judgements of my professors.
- The reasons I receive a specific grade are often unclear to me.
- My grade in a course accurately reflects the amount I have learned.
- My grade in a course reflects my overall intelligence.
- My grade in a course reflects my current level of skill in that particular subject matter.

[Block: Student perceptions of specifications grading]

Read the following description of specifications grading carefully and then respond to the related questions.

Description: Specifications grading is an alternative grading scheme that allows students to choose the grade they want to earn in a course based on the amount of effort they want to put in. In a specifications grading system, the professor creates "bundles" of assignments for each letter grade, often giving students choices of assignments within each bundle. In order to earn the grade of their choice, students complete the bundle of assignments aligned with that grade. For every assignment, the professor shares a clear and comprehensive set of criteria for successful completion (that is, the assignment's specifications). No letter grades are given for individual assignments; rather, each assignment a student turns in either meets the specifications, or it does not. Instead of a letter grade on each assignment, the instructor offers plentiful feedback, including suggestions for revision. The specifications grading system allow for revision opportunities, such that an assignment that does not yet meet the criteria can be redone. The course grade is determined by students completing all assignments in their chosen bundle in accordance with the stated specifications. In a specifications grading system, professors may collaborate with students to create the criteria for some or all course components.

On a scale of 1 to 10, (1=not at all, 10 = very much), how much does specifications grading appeal to you?

Please explain your response

Indicate your agreement with the following statements. (1 equals strongly disagree, 6 equals strongly agree). Based on the above description…

- I think that specifications grading would give me more freedom to learn in ways that appeal to me, compared to most other courses I take.
- I think that specifications grading would give me more choices about the kind of work I do, compared to most other courses I take.
- I think I would appreciate having some choice in the assignments I do for a course.
- I think that specifications grading would allow me to have more of a say in how my work is evaluated, compared to most other courses I take.
- I think I would appreciate the opportunity to collaboratively determine the grading criteria for one or more assignments in a course I take.
- I think that specifications grading would lead me to work harder than I normally work in most courses I take.
- I think I would learn more in a class that uses specifications grading, compared to courses that use traditional grading.
- I think I would feel more confident about my course grade in a class that uses specifications grading.
- I think I would feel more anxious about my course grade in a class that uses specifications grading.
- I think I would earn a higher grade in a course that uses specifications grading than in a traditional course.
- I think that specifications grading would give me a better understanding of a professor's expectations for success.

Post-Semester Survey Questions

[Block: Student beliefs about grades]

Indicate your level of agreement with the following statements: (1 is strongly disagree and 6 is strongly agree). In general…

- The grade I earn in a course depends on the amount of effort I put in.
- The grade I earn in a course depends on the strategies I use to do my work.
- Greater effort always translates into higher grades.
- When I put more time into my schoolwork, I earn higher grades.
- I don't have much control over my grades, regardless of how much effort I put in.
- Lots of effort does not necessarily translate into earning high grades.
- My grades are based on the subjective judgements of my professors.
- The reasons I receive a specific grade are often unclear to me.
- My grade in a course accurately reflects the amount I have learned.
- My grade in a course reflects my overall intelligence.
- My grade in a course reflects my current level of skill in that particular subject matter.

[Block: Student perceptions of Specifications Grading]

Indicate your agreement with the following statements. (1 equals strongly disagree 6 equals strongly agree).

- I think that the specifications grading in this course gave me more freedom to learn in ways that appeal to me, compared to most other courses I've taken.
- I think that the specifications grading in this course gave me more choices about the kind of work I did, compared to most other courses I've taken.
- I appreciated having some choice in the assignments I completed for this course.
- I think that specifications grading in this course allowed me to have more of a say in how my work is evaluated, compared to most other courses I've taken.
- I appreciated the opportunity to collaboratively determine the grading criteria for one or more assignments in this course.
- I think that the specification grading structure of this course led me to work harder than I normally work in most courses I've taken.
- I think I learned more in this course compared to other courses I've taken that use traditional grading.
- I felt more confident about my grade in this course than I would have in a course that uses traditional grading..
- I felt more anxious about my grade in this course than I would have in a course that uses traditional grading..
- I earned a higher grade in this course than I would have in a course that uses traditional grading.
- Specifications grading gave me a better understanding of the professor's expectations for success in this course.
- The grading system for this course was (much more, more, equally, less, much less) transparent than for courses that use a traditional grading system.
- On a scale of 1-10, please rate your overall impression of specifications grading. (10 = very positive, 1 = very negative)

    Please explain your response

Open-ended Questions:

- In what ways was the specifications grading system helpful for setting course expectations and determining final grades?
- In what ways was the specifications grading system unhelpful for setting course expectations and determining final grades?
- In what ways did the specifications grading system impact your motivation(s) to complete the assigned coursework?
- What advice would you give to a peer who is considering enrolling in a class that uses specifications grading about whether to enroll and how to succeed in that course?
- Overall, would you recommend that more instructors adopt a specifications approach to grading? (yes/no)

  Please explain your answer

- Were you satisfied with your grade in the course relative to the amount of effort you put in? (yes/no)

  Please explain your answer