

Exploring Undergraduate Students' Experiences with Standards-Based Grading

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Specifications or Standards-based grading (SBG) is a set of grading approaches that focus on evaluating students' proficiency of learning objectives (Campbell et al., 2020). Over the academic year of 2022-2023, seven Pennsylvania State University faculty from the departments of chemistry, math, physics, and statistics, have implemented SBG in a dozen classes, ranging from introductory to upper division and small (<25 students) to large (~500 students). We present preliminary results of an investigation on students' experience with SBG in these settings. There have been only a few such investigations in higher education (e.g., see Buckmiller et al., 2017).

Our retrospective qualitative study includes student interviews and focus groups. We selected participants from initial survey responses paying attention to diversity among demographics, courses, and expressed opinions about SBG. At the time of this submission, 186 students have completed the survey, and we have conducted interviews with seven students and two focus groups covering seven additional students. While most of the students' comments in the survey describe positive experiences with SBG, we made sure to interview students who described negative or particularly unusual experiences. All authors participate in constant comparative coding, focused coding, and memo writing (Olson et al., 2016).

As we work towards building a grounded theory of students' experiences with SBG, we have identified several preliminary emergent themes. First, many participants feel that SBG leads to deeper learning compared to traditional grading system. Second, students often highlighted the flexibility of SBG systems, particularly the common retake policy on proficiency checks or quizzes. Some students discussed using this flexibility to have more control over their learning, setting up the pace of their study, increasing motivation and reducing stress. One student mentioned difficulties that arose from such flexibility as they had to manage procrastination and work-avoidance behaviors. One focus group discussed the stress they felt related to the slow pace of progress and/or exhaustion from the large number of quizzes. Almost all participants reported some level of initial confusion with how SBG worked. Finally, some participants expressed mistrust towards the attribution of grades in traditional grading systems. These students conveyed that SBG grades felt more reflective of their actual understanding of the material.

Acknowledgments

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References

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Building a grounded theory of Students' Experiences with Standards-Based Grading.

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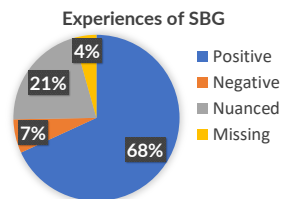
Specifications or Standards-based grading (SBG) is a set of grading approaches that focus on evaluating students' proficiency of learning objectives. Often graded on pass/fail or proficient/progressing with multiple opportunities for retakes.

Research Question: What are the experiences of undergraduate students in science and mathematics courses that use Standards-Based/Specifications Grading?

Courses	N	Main Assessment
Intro Calculus	238	Learning Target Quizzes with retakes
Statistics	132	Homework/Projects
Chemistry	739	Learning Target Quizzes with retakes
Physics	90	Learning Target Quizzes with retakes

METHODS

1. Retrospective Survey data (91 respondents).
2. Individual and focus group interviews (24 students to date).
3. Focused coding, memos.
4. Work on the grounded theory in progress.



Students perceive that the control and flexibility of standards-based grading increases motivation and reduces stress but some report procrastination and test-reset behaviors.

You really had full control over what grade you were going to get.

[...] and just gather knowledge at your own pace, you know, at your own time, and stress-free.

You were able to just breathe and really understand the work that you were doing



This Research Is
Proficient Progressing

Early Findings

SBG = Standards-Based grading
TG = Traditional Grading

Grades as source of motivation

- o Trade-offs between minimizing effort and maximizing grade
- o Striving to reach mastery in SBG, not just satisfactory
- o Low grades are not damning (SBG)
- o SBG grades only increase; TG is opposite

Understanding material/content

- o Test/reset phenomenon, chunking
 - Felt in both grading systems
 - TG incentivizes short-term learning
- Some students saw chunking as a positive that helped them learn
- o SBG provided deeper learning
 - Better at recall in SBG

Flexibility of SBG

- o Both positive and negative
- o Student controls learning in SBG
 - Can lead to procrastination
 - Can lower stress

Stress of grading systems (both)

- o Many items tested together TG
- o Initial unfamiliarity with SBG

The Pennsylvania State University



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