

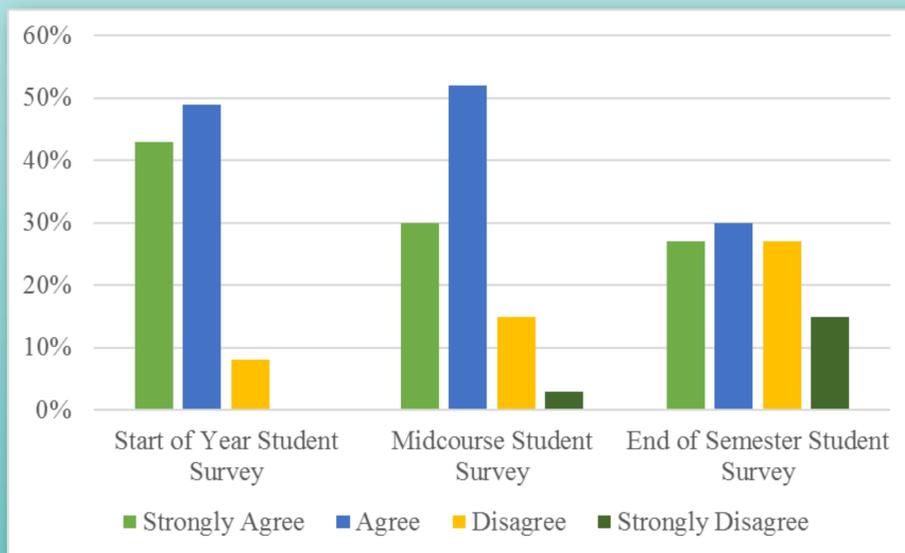
Standards-Based Grading in a Physics Classroom



Introduction

As a physics teacher I share information about how the world works. Energy and forces, motion and waves. Student learning has always been a priority but assessing student learning is a challenge. Determining what students should know and what they actually learned is a difficulty that I had when designing my curriculum. A student might have an “A” but not know much material. Another student might be failing, but understands most concepts. This problem led me to rethink how I teach, but more importantly, how I assess student learning. I felt that the best way to accomplish this was with the concept of Standards-Based Grading.

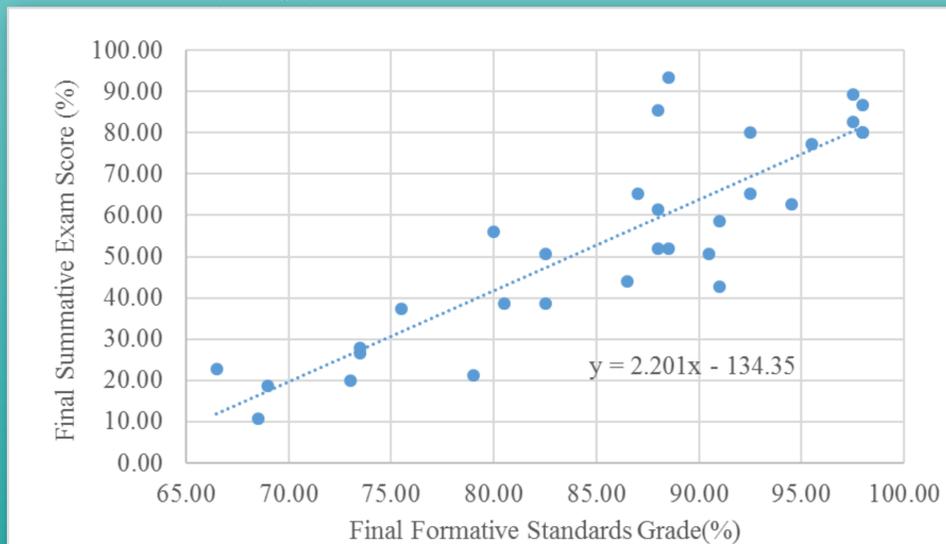
Student survey question – importance of grades.



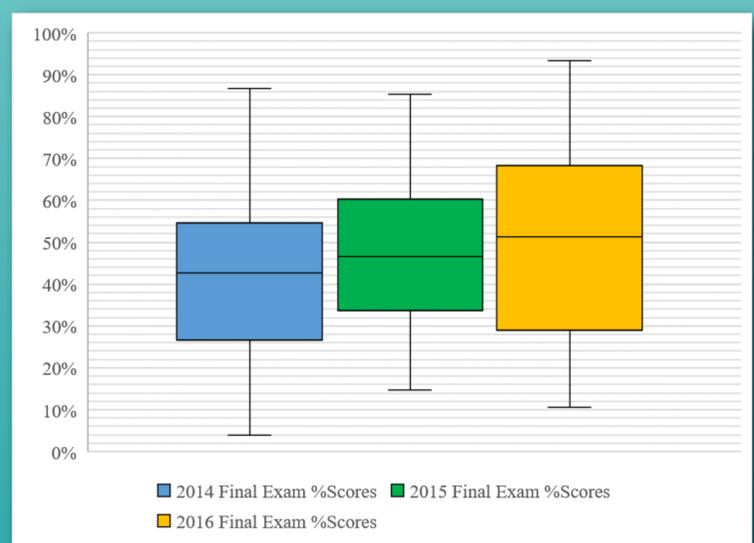
Data triangulation matrix

	Data Source 1	Data Source 2	Data Source 3
Focus Question— How will standards based grading affect the engagement and performance of students in a high school physics	Student Surveys	Standards-Based Grades	3 years of Final exam scores
Secondary Question— Will Standards-Based Grading change the attitude of students toward grading?	Start of Year Survey	Midcourse Survey	End of Semester Survey

Relationship between summative and formative physics assessments during the fall semester 2016, (N=31).



Final exam score trends.



Results

This study shows the effectiveness of Standards-Based Grading when used as a formative assessment. There was a direct linear relationship between the standards-based grade when compared to the summative final exam scores. This indicates that the amount of material learned and understood by students had a relationship to the standards that the students completed. Student opinion about grades changed throughout the study. At the beginning of the study 92% of students said that a letter grade was important. By the end of the study only 57% of students were more concerned with their letter grade than with the standards they needed to learn.

Student Quotes

- “I like the way the standards idea works. I think it's a very good representation of growth in my understanding and learning. I really feel like I learned something in this quarter.”
- “I like standards grading because you can always improve your grade. I like it instead of having to take a test.”
- “I like how the standard based grading gives you the score you deserve. And not having to stress a lot about having actual tests.”

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