Fostering Growth Mindsets:

Implementing Standards-Based Grading in College Algebra

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What do you WANT assessments to measure?

What do you *WANT* grades to measure?

- The student's understanding of the material
- The student's ability to succeed in future endeavors that rely on the material
  - Undergraduate courses
  - Graduate School
  - Jobs


What do your assessments ACTUALLY measure?

What do your assessments *ACTUALLY* measure?

- How long did it take a student to learn the material
- Did the student have a bad day
- How adept a student is at stringing together partial credit

“The chair of the department of a Big Ten university once observed, probably after a bad day, that it was possible for a student to graduate with a mathematics major without ever having solved a problem correctly. Partial credit can go a long way.”

—Dudley Underwood

Weighted Average Grading (WAG)

- The “traditional” approach
- Total number of points is divided into categories
  - e.g., Homework, quizzes, exams, etc.
- Each category is worth a percentage of the total grade

Standards-Based Grading (SBG)

- Is both iterative and forgetful
- Students have multiple opportunities to demonstrate understanding
- Doesn't penalize students for past mistakes
  - I.e., They can learn from their mistakes

Standards-Based Grading Method

Create Standards

Divide content material into a set of “standards”

Create Assessments

Create multiple assessments throughout term

Grade

Grade assessment using simplified grading scale

Simplified Grading Scale

Needs Improvement

Significant gaps or errors in core understanding

Progress

Core understanding is evident, but with gaps or non-trivial mistakes

Mastery

Core understanding is solid with no errors or with trivial, easily correctable errors

Generating Faculty Buy-In

1. Ground Your Case in Evidence
2. Engage Administration First
3. Frame the Conversation for Faculty
4. Acknowledge Resistance
5. Build Momentum Gradually
6. Find/Create a Community of Practice
7. Be Persistent and Flexible

Generating Student Buy-In

1. Be Transparent from the Start
2. Define Mastery Clearly
3. Reinforce the Process Regularly
4. Foster a Collaborative Mindset
5. Use Empathy to Address Concerns
6. Use Examples and Success Stories
7. Be Patient and Persistent

Our College Algebra Study

WAG

5 sections

5 instructors

136 students

SBG

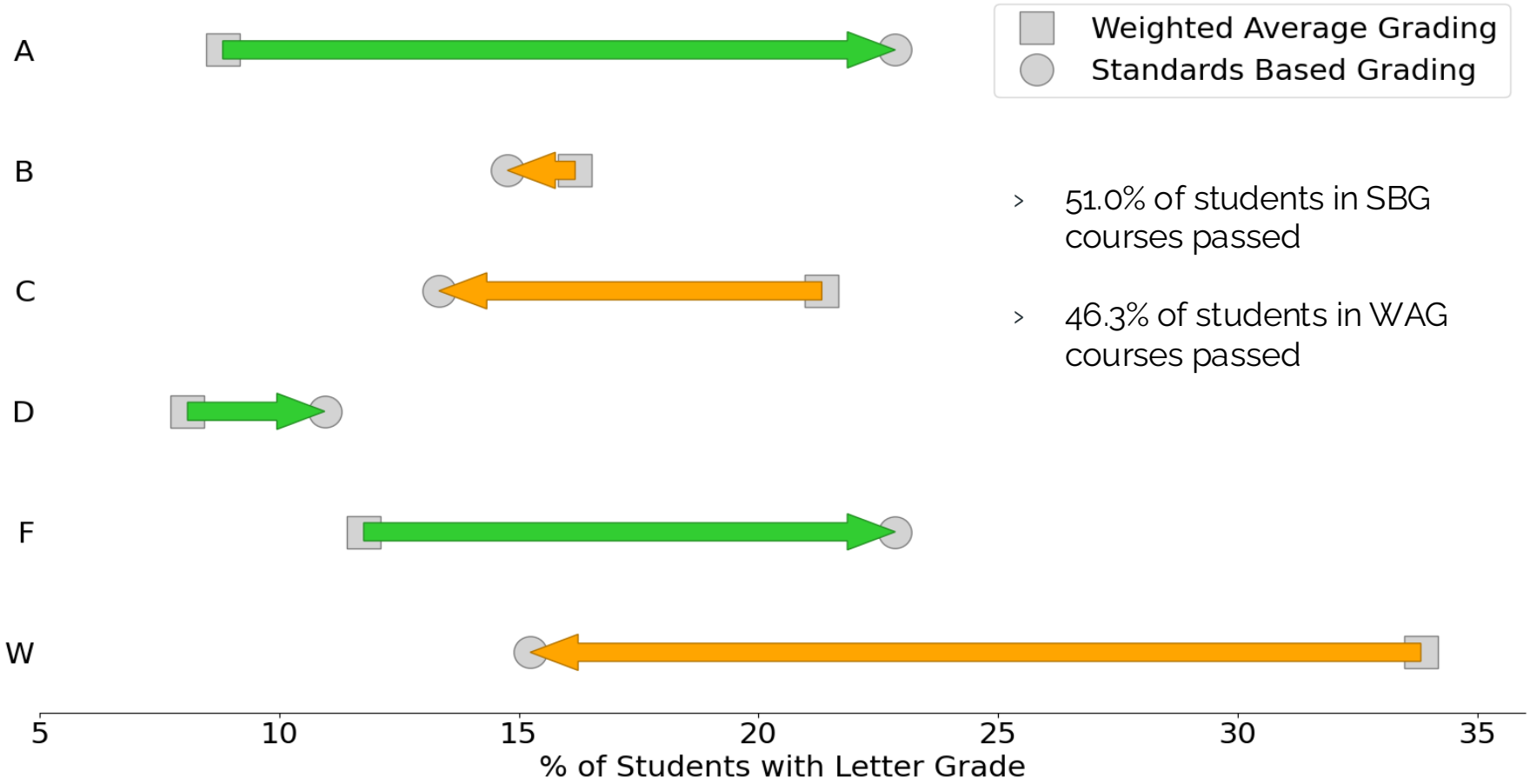
6 sections

1 instructor

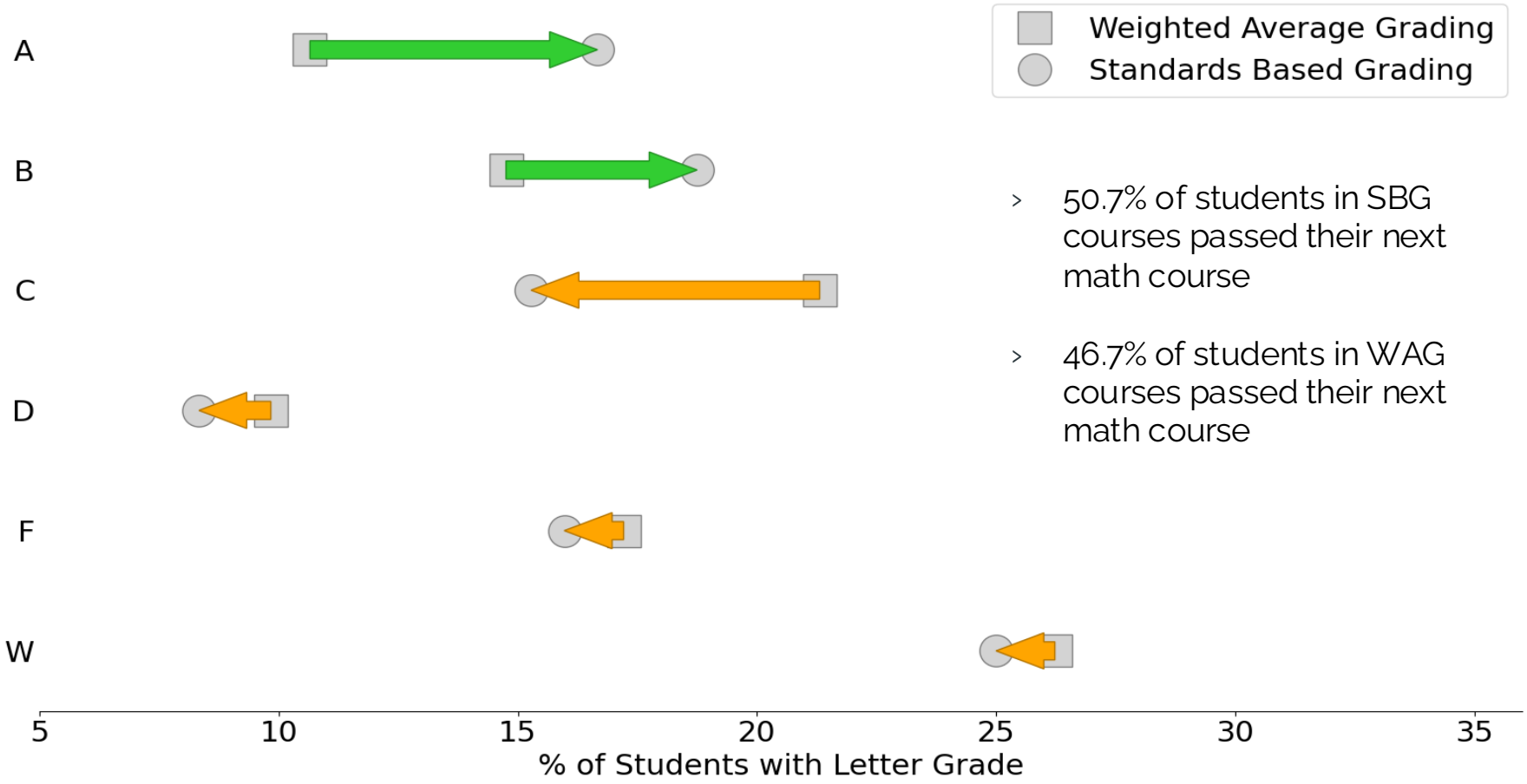
210 students

Grading Scale

# Standards Mastered	MyMathLab Average				
	90%-100%	80%-89%	70%-79%	60%-69%	< 60%
22-25	A	B	B	B	C
19-21	B	B	C	C	D
16-18	C	C	C	D	D
13-15	D	D	D	D	F
< 13	F	F	F	F	F



- 51.0% of students in SBG courses passed
- 46.3% of students in WAG courses passed



- 50.7% of students in SBG courses passed their next math course
- 46.7% of students in WAG courses passed their next math course

Resources

https://blakefarman.phd/sbg-resources

- Sample Material
- Community Resources
- Meetings and Workshops
- Scholarly Articles