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Standards-Based Assessment in a Developmental Math Course

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Standards-Based Assessment in a Developmental Math Course

Abstract
Learn why we decided to try standards-based instruction in an undergraduate, developmental algebra course and what we learned in the process.

Standards-Based Assessment in a Developmental Math Course

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Michal Huizenga
Aaron Van Beek
Kate Van Weelden

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Introductions

Dr. Valorie Zonnefeld
Michal Huizenga
Aaron Van Beek
Kate Van Weelden

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Developmental Math

- Completing a college-level math course is a common roadblock for many students (Topper, 2011).

- The 'gatekeeper to achieving a college degree' (Bryk & Treisman, 2010).

- "math should be a gateway, not a gatekeeper, to a successful college education" (p. 1).

Mathematics for College

- Students Enrolled
  - ➢ MATH ACT <18
  - ➢ 24 students
  - ➢ 4 Teacher Assistants

- Must pass Math 100 in their freshmen year

Mathematics for College

Meeting times

- 4 credits
  - ➢ Class 3x per week, MWF
    - Learning Style
  - ➢ Labs 2x per week, TTh
    - Extra support
    - Standards Quiz
    - Homework help

1.2 A) Convert 96 feet to inches

$$\frac{96ft}{} \cdot \frac{1 \, yd}{3 \, ft} \cdot \frac{36 \, in}{1 \, yd} = 1152 \, in.$$

Convert 233 grams to ounces

$$\frac{233 \, g}{} \cdot \frac{1 \, P}{454 \, g} \cdot \frac{16 \, O}{1 \, P} = 8.22$$

2.2 C)

$$2(w+4) - 1 = 1$$
$$2w + 8 - 1 = 1$$
$$2w + 7 = 1$$
$$\quad -7 \quad -7$$
$$\frac{2w}{2} = \frac{-6}{2}$$
$$\boxed{w = -3}$$

$$3 - (r-1) = 2(r+1) - r$$
$$3 - r - 1 = 2r + 2 - r$$
$$\qquad +1 \qquad\qquad +1$$
$$3 - r = 2r + 3 - r$$
$$-3 \qquad\qquad -3$$
$$0 - r = 2r - r$$
$$\frac{-r}{-r} = \frac{1r}{-r}$$
$$\boxed{r = 1}$$

2.3 C)
$$5(m-1) - 6(m+3) = 4 - m$$
$$5m - 5 - 6m - 18 = 4 - m$$
$$\qquad\qquad +18 \quad +18$$
$$5m - 5 - 6m = 22 - m$$
$$\quad +5 \qquad\qquad +5$$
$$\boxed{\text{inconsistent}}$$
$$5m - 6m = 27 - m$$
$$+m \qquad\qquad +m$$
$$6m - 6m = 27$$
$$m = 27$$

Standards-Based Design

- Selected Standards

- Homework Policy

- Assessment Strategy

- Reassessment Ticket

- Reassessing Limits

In what ways has this course helped to fulfill Dordt's mission?

Helped me try + keep positive outlook on learning.

It has helped me to gain a more positive outlook on math.

Taught me that you can be good at math when you think you aren't.

It was the 1st positive Math experience I have ever had

Which course assignments, activities, and/or teaching methods were most helpful for your learning?

The Standards
& Board work

The Standard Assessments & the use of the smart board in class

I loved the standards, I have never felt more confident in math

The standards were so helpful. I enjoyed the TA sessions just.

Standards

Assessments.

IDEA Ratings of Student Satisfaction

Average Grade Comparison

Chart showing average grade comparison for Quizzes /Standards. Traditional (light blue) ≈ 71, Standards (dark blue) ≈ 95.
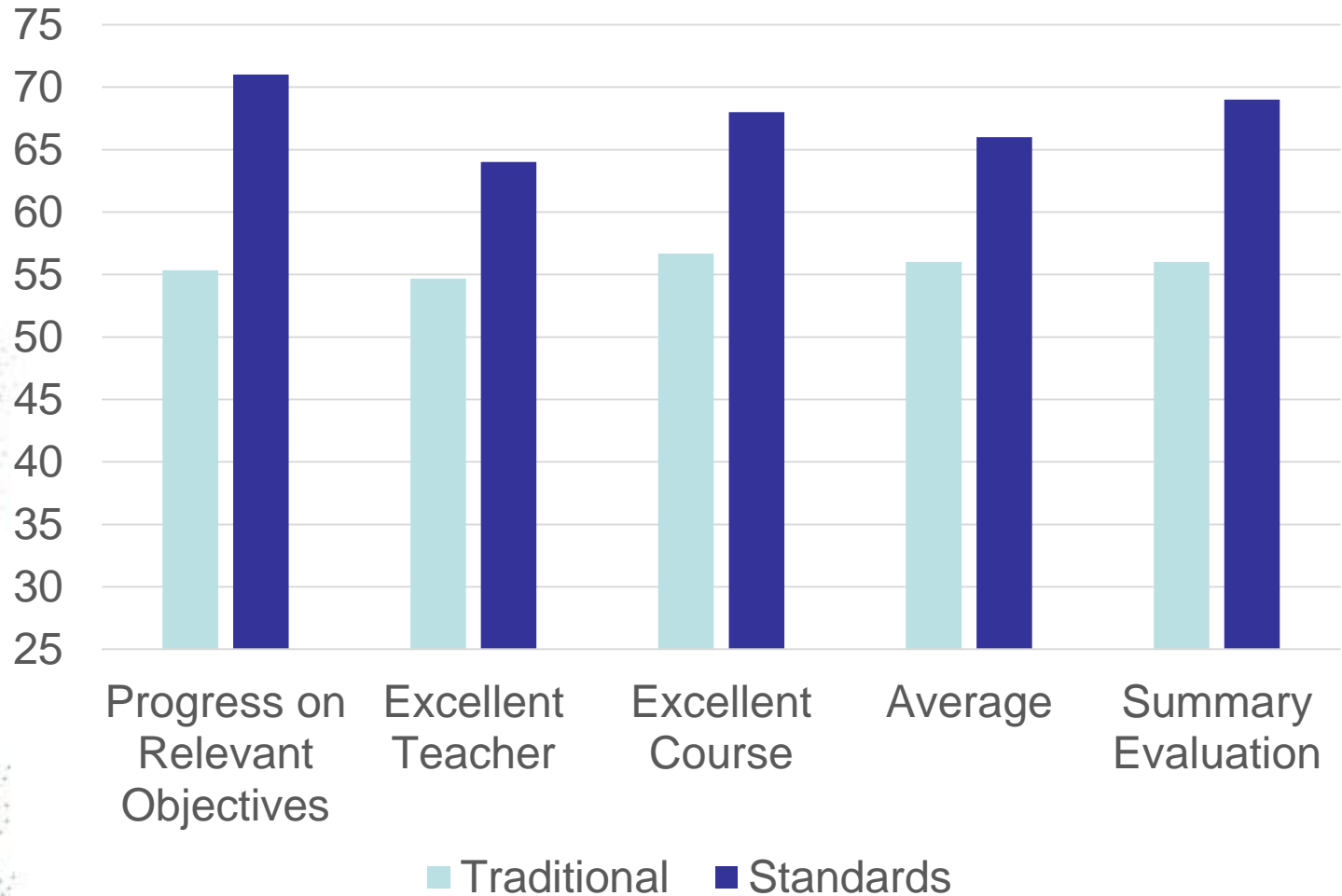
Legend: ■ Traditional ■ Standards

$p < .0001$ $p < .0001$ $p < .0001$

$n_{Traditional} = 65, n_{Standards} = 11$

Organizational Strategies

Unit 1: Name_____

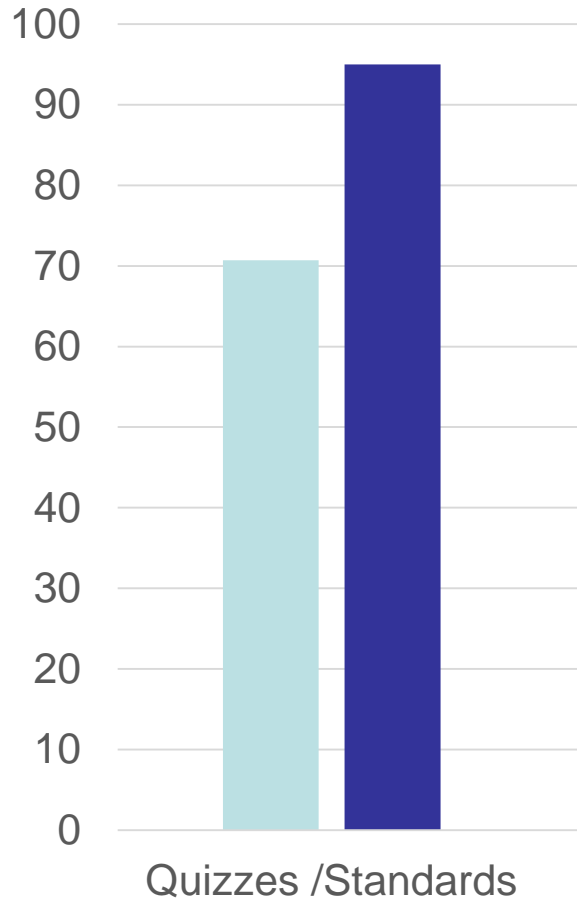| Standards:	Form A	Form B	Form C	Form D	Standards:	From A	Form B	Form C	Form D
1.1A	3				2.5A	3			
1.1B	3				2.5B	1	3		
1.1C	0	3		-	2.5C	3			
1.1D	3				2.5D	1	1	3	
1.2A	3				2.6A	2			
1.2B	3				2.6B	2			
1.2C	3				2.6C	1	3		
1.2D	3				2.7A	3			
1.2E	3				2.7B	2			
1.2F	3				2.7C	1	3		
1.3A	3				2.7D	1	3		
1.3B	3				2.8A	3			
1.3C	3				2.8B	3			
1.4A	2				2.8C	1	2		
1.4B	3				2.9A	3			
1.4C	1	1	3						
1.5A	2								
1.5B	2								
1.6A	3								
1.6B	3								

Questions?