
Faculty Work Comprehensive List

10-2016

Standards-Based Assessment in a Developmental Math Course

Valorie L. Zonnefeld

Dordt College, valorie.zonnefeld@dordt.edu

Michal Huizenga

Dordt College

Aaron Van Beek

Dordt College

Kate Van Weelden

Dordt College

Follow this and additional works at: https://digitalcollections.dordt.edu/faculty_work



Part of the [Higher Education Commons](#), and the [Mathematics Commons](#)

Recommended Citation

Zonnefeld, V. L., Huizenga, M., Van Beek, A., & Van Weelden, K. (2016). Standards-Based Assessment in a Developmental Math Course. Retrieved from https://digitalcollections.dordt.edu/faculty_work/578

This Conference Presentation is brought to you for free and open access by Dordt Digital Collections. It has been accepted for inclusion in Faculty Work Comprehensive List by an authorized administrator of Dordt Digital Collections. For more information, please contact ingrid.mulder@dordt.edu.

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.

Keywords

educational evaluation, standards, teaching strategies

Disciplines

Higher Education | Mathematics

Comments

Presented at the Iowa Council of Teachers of Mathematics Conference held in West Des Moines, October 9-10, 2016.

Standards-Based Assessment in a Developmental Math Course

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



D O R D T
C O L L E G E

Introductions

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



D O R D T
C O L L E G E



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

A decorative vertical strip on the left side of the slide, featuring a green chalkboard texture. It includes two pieces of pink chalk and a white arrow pointing upwards.

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

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

Convert 233 grams to ounces

$$\frac{233 \text{ g}}{454 \text{ g}} \cdot \frac{1 \text{ lb}}{1 \text{ lb}} \cdot \frac{16 \text{ oz}}{1 \text{ lb}} = 8.22$$

2.2c) $2(w+4) - 1 = 1$

$$2w + 8 - 1 = 1$$

$$2w + 7 = 1$$

$$\quad -7 \quad -7$$

$$\frac{2w}{2} = \frac{-6}{2}$$

$$w = -3$$

$$3 - (r-1) = 2(r+1) - r$$

$$3 - r + 1 = 2r + 2 - r$$

$$\quad +1 \quad +1$$

$$3 - r = 2r + 3 - r$$

$$\quad -3 \quad -3$$

$$0 - r = 2r - r$$

$$-r = 1r$$

$$-r = r$$

$$r = 0$$

2.3c) $5(m-1) - 6(m+3) = 4-m$

$$5m - 5 - 6m - 18 = 4 - m$$

$$\quad +18 \quad +18$$

$$5m - 5 - 6m = 22 - m$$

$$\quad +5 \quad +5$$

inconsistent

$$5m - 6m = 27 - m$$

$$\quad +m \quad +m$$

$$-m - 6m = 27$$

$$m = 27$$

A decorative vertical strip on the left side of the slide, featuring a green chalkboard texture. It includes two pieces of pink chalk and a white chalk arrow pointing upwards.

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

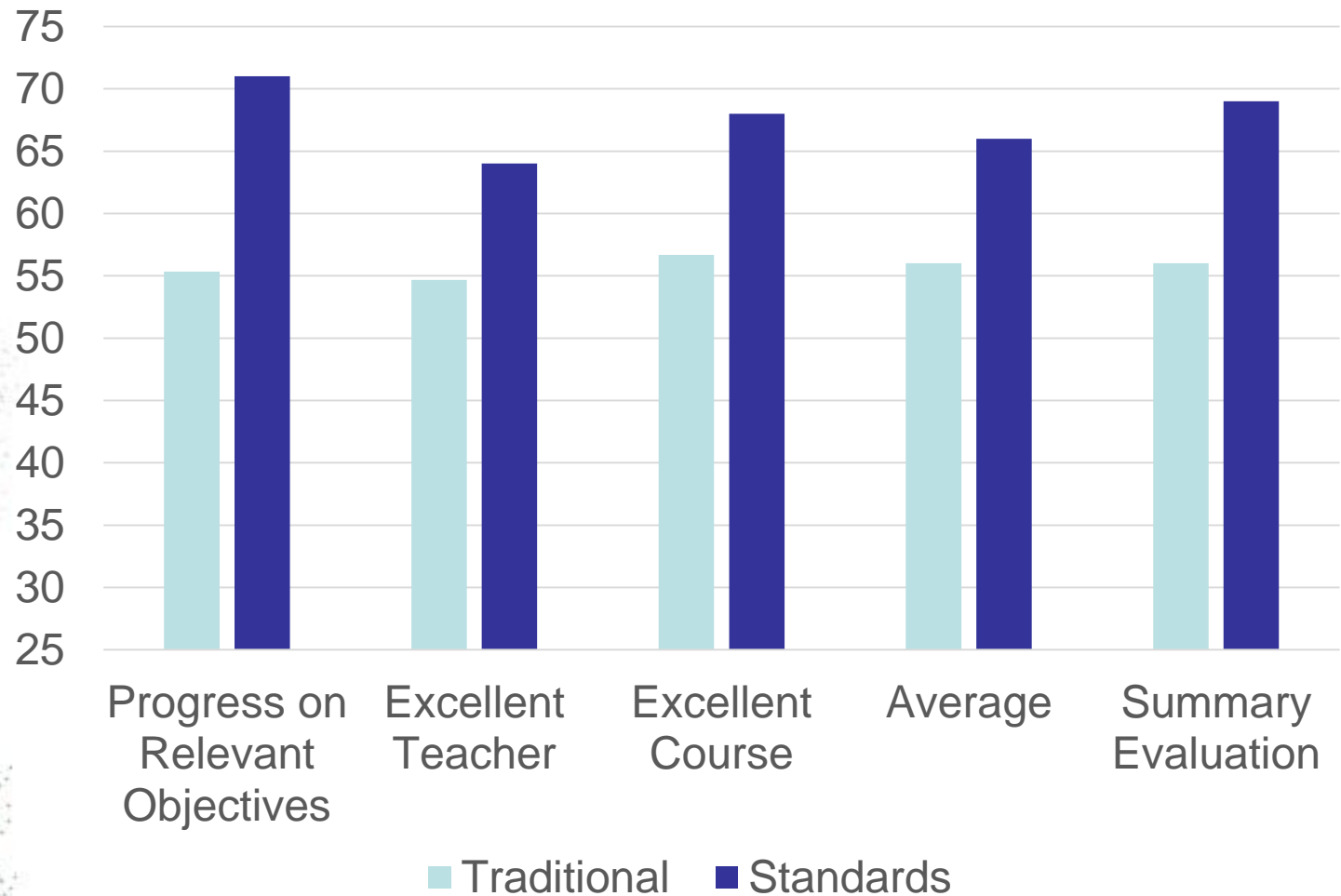
The Standard Assessments & the use
of the smart board in class

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

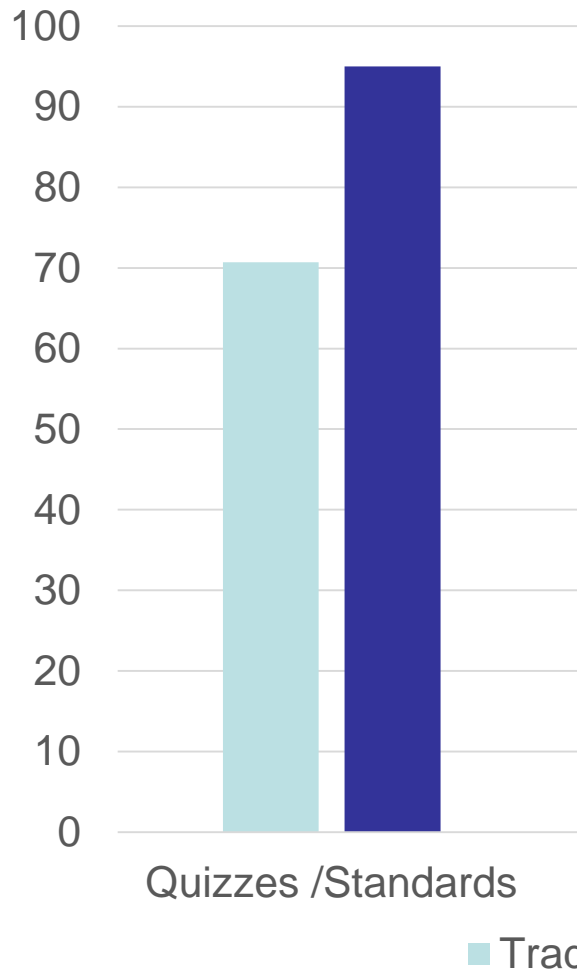
The standards were so helpful. I enjoyed
the TA sessions a lot.

Standards Assessments.

IDEA Ratings of Student Satisfaction



Average Grade Comparison



$p < .0001$

$p < .0001$

$p < .0001$

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

Organizational Strategies

Unit 1: Name _____

Standards:	Form A	Form B	Form C	Form D	Standards:	Form 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?

