



Carnegie Foundation
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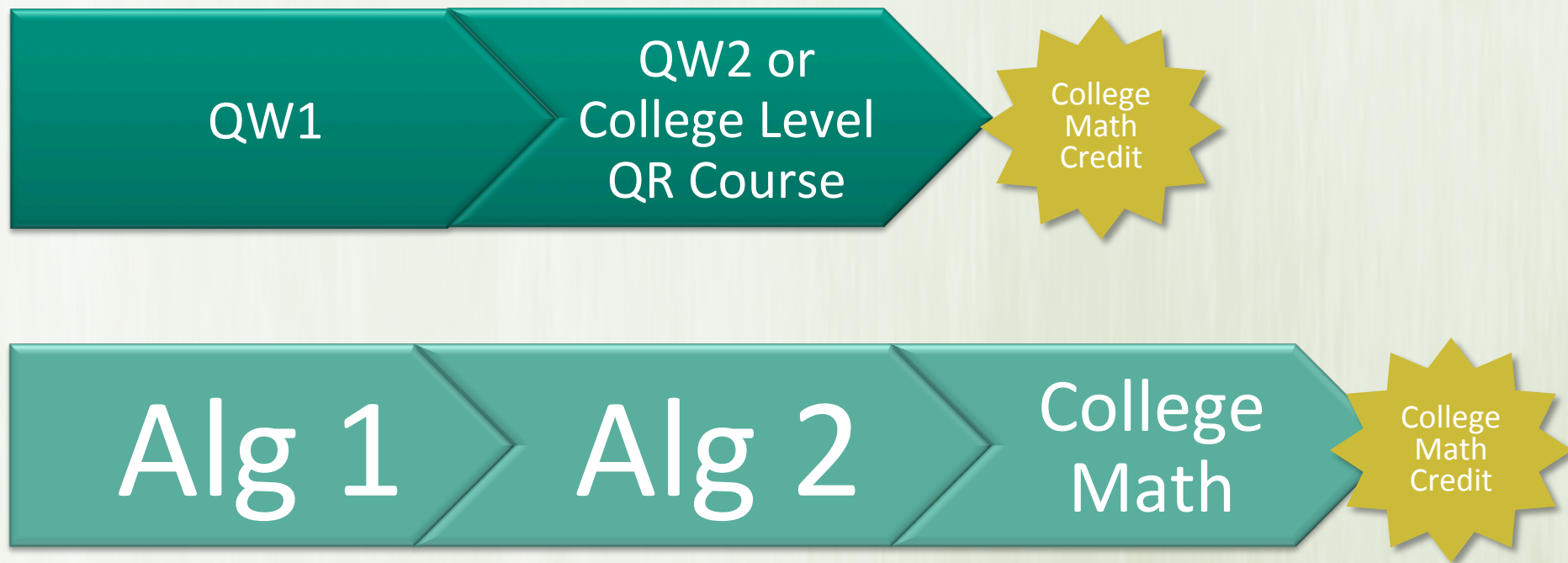


A Collaborative Approach to Assessing Quantitative Literacy within Carnegie's Quantway Pathway for Developmental Mathematics

Eugene Milman, BMCC

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An Alternative Pathway

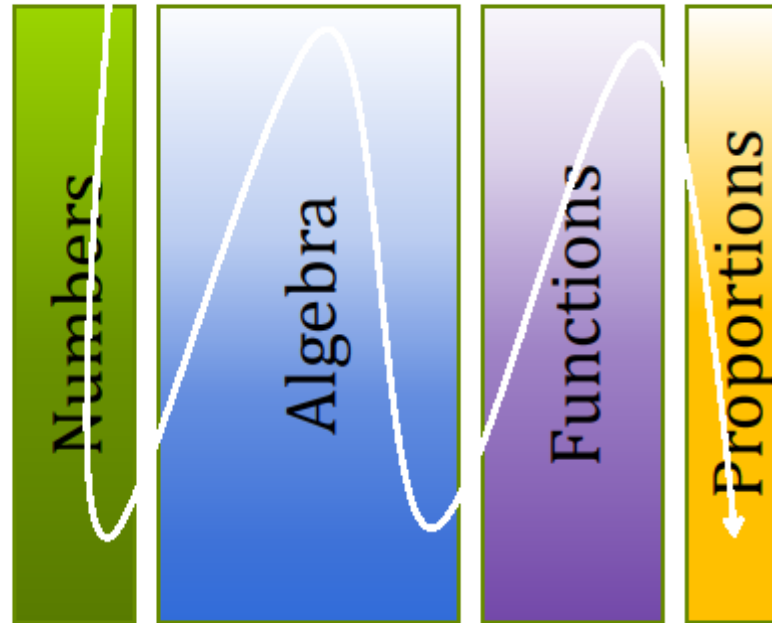


Quantway

- A Developmental quantitative literacy course embodied in the contextualized curriculum
- Design Principles:
 - Productive Struggle
 - Explicit Connections
 - Deliberate Practice
- Appropriate for students in programs that require a general education mathematics course
- Launched in Spring 2012 semester

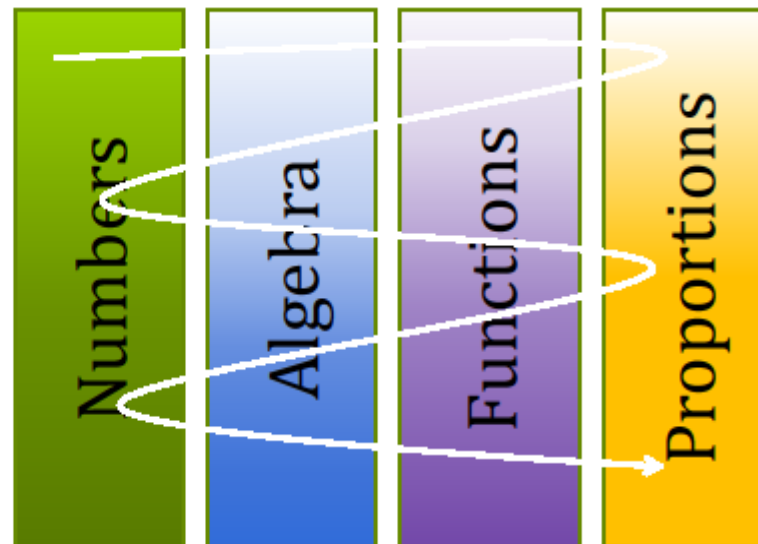
Traditional Approach

- Theory, then applications if time
- Each strand done separately to completion
- Algebra is primary focus
- Skill based
- Examples of every possible variation of skill
(problem recognition)



New Approach

- Applications to motivate, then theory as needed
- Strands addressed each unit in an integrated fashion going deeper each time
- Equal time on each strand
- Concepts-based
- Fewer skills, more connections



Undercurrent of geometry, statistics,
student success, mathematical success

Quantway

Network Improvement Community (NIC)

21 Community Colleges

10 States (CT, GA, HA, MA, MN, NJ, NY, OH, WV, WI)



Quantway: Learning Outcomes

- **Multiple Literacies**
- **Numerical Skills**
- **Proportional Reasoning**
- **Mathematical Modeling**
- **Algebraic Reasoning**
- **Statistical Thinking**

Assessment Building Process

Item Writing

**Measurement Review
and Content Check:
Faculty; Carnegie**

**Language &
Literacy**

**Field
Testing /
Piloting**

**Psychometric
Analysis**

**Assessment
Assembly**

**Measurement Review
and Content Check:
Faculty; Carnegie**

**Dissemination
and
Administration**

**Performance
Analysis**

Examples of Items

- **Learning Outcome**

Read and use information presented in a two-way table

- **Item**

Suppose 3200 women received a mammogram to test for breast cancer. The mammogram provides test result information about whether the women do or do not have breast cancer. The table below summarizes the mammogram results. The table shows how often the mammogram correctly detected the presence of breast cancer in the 3200 women.

	Women with Breast Cancer	Healthy Women (no Breast Cancer)	Total
Positive test result	11	5	16
Negative test result	17	3167	3184
Total	28	3172	3200

a. 31 % b. 40% c. 57% d. 69%

Implementation

Successes

- Demonstrates the level of knowledge for Pathways students following each course
 - Program improvements
 - Validity of curriculum / content
- Universal measure for all students across the Networked Improvement Community

Challenges

- Only multiple choice - we need a wider variety of item types
- Need more assessment capacity within the NIC as the NIC continues to expand

Quantway at BMCC

- Overview
 - Largest offering of Quantway course (17 sections each semester)
 - Faculty and tutor training
 - Weekly Quantway faculty meetings
 - Lesson Studies
- Final Assessment
 - All sections administer the Quantway Assessment as a Final Examination
 - 20% of the final course grade
 - 60% of 40 items must be answered correctly to demonstrate minimum proficiency
 - Strong correlation between performance on the Final Assessment with other course grades

Expansion

Opportunity

- New online platform
- Assessment Expert Convening next week at Carnegie (Jan. 22nd and 23rd)

Goals

- Designing a method for creating and implementing a wider range of item types
- Building the assessment literacy and responsibilities of the Networked Improvement Community
 - E.g. growing assessment leadership, item writers, interactive item bank

Thank you

Questions