

Reform, not Redesign, in Developmental and Gateway Math Courses

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2012 MichMATYC conference

This Session ...

- Context of the math problem
- Five dimensions – necessary AND sufficient for a solution
- Reform choices
- Emerging Models
- Our discussion (≥ 20 minutes)

A Quick side note ...

- Partially based on June 6, 2012 webinar (AMATYC)
- Uri Treisman & Jack Rotman

Context of the math problem

- Developmental mathematics was attempt to correct ‘lack of high school preparation’.
- Mis-matched to student needs (procedural emphasis tied to ‘calculus target’)
- College-level math success rates are also unacceptably low
- Not just about math preparation – also part of general education and improving lives

Five dimensions for a solution:

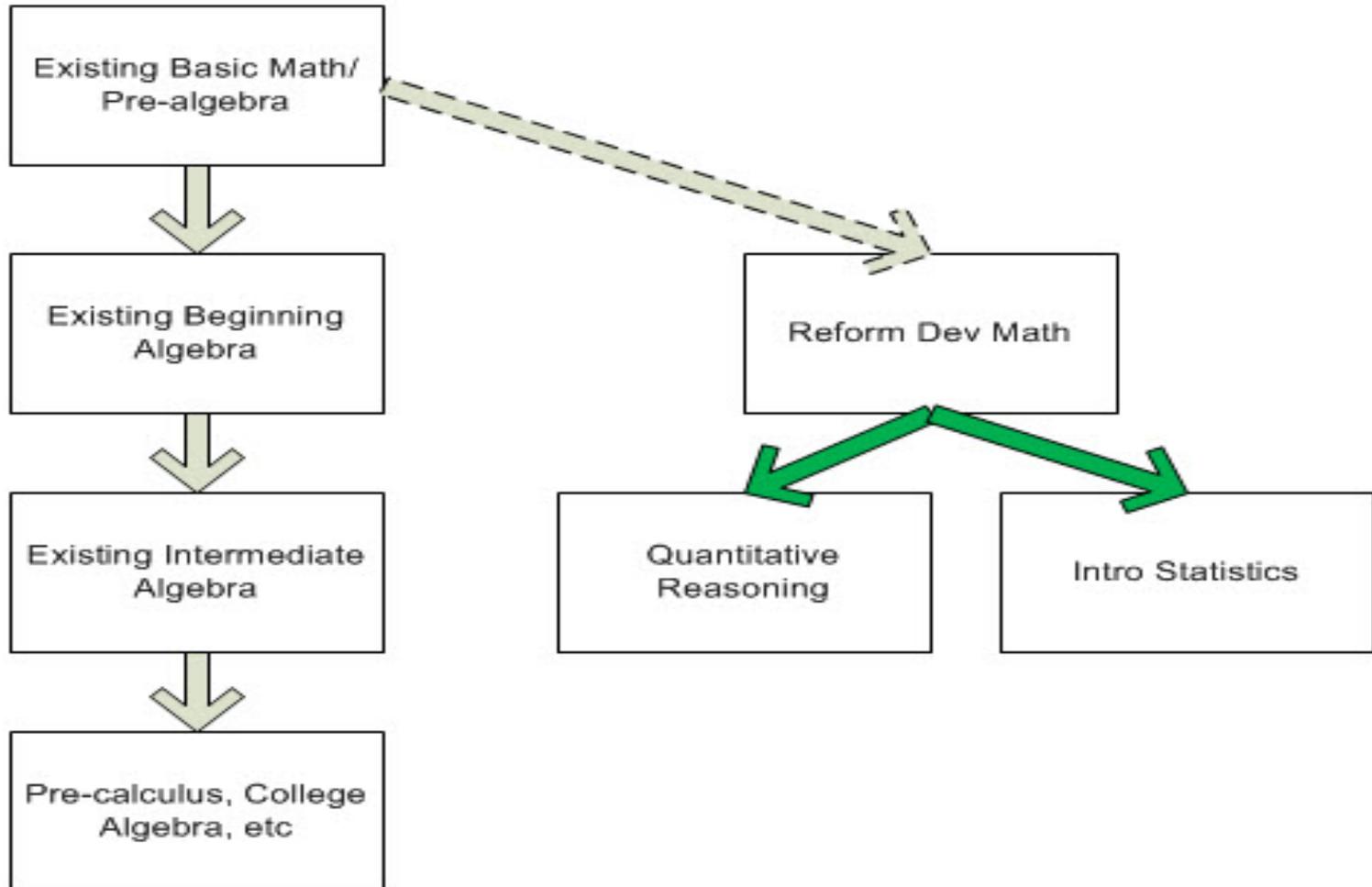
- **Content** ... meet broad student needs
- **Delivery** ... professional, effective
- **Structure** ... course sequence and entry
- **Student Supports** ... macro (connections, resources, skills) and micro (tutoring, content)
- **Faculty Supports** ... community, resources, professional connections, working networks

From the Dana Center/Uri Triesman 2012

A choice: Reform for Target Groups

- Connect your dev math reform course(s) to specific student destination course(s)
- Statistics ... quantitative reasoning ... other
- Advising and college processes get students into the new sequence

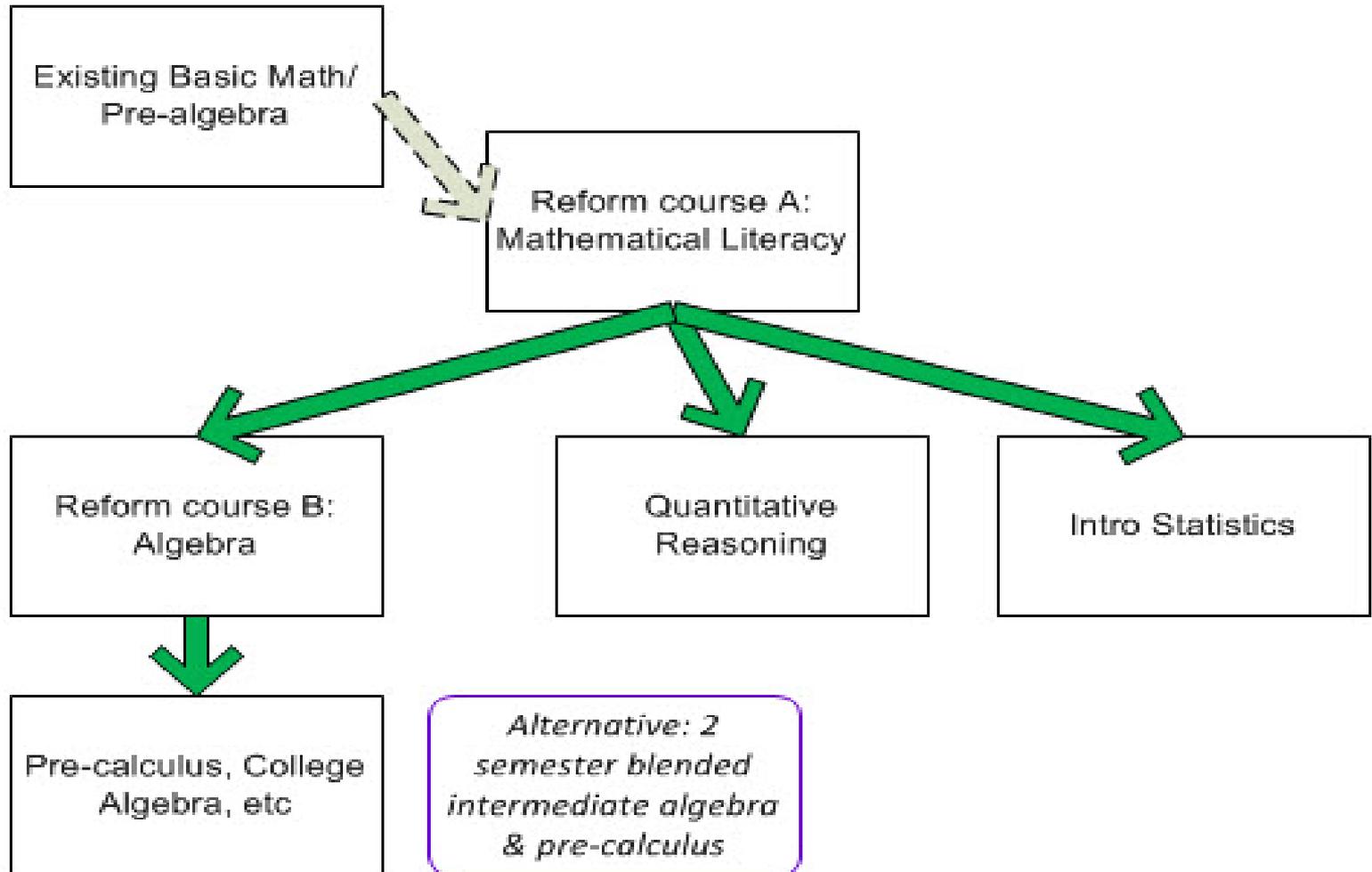
Reform Math for Target Groups



A choice: Reform for All Students

- Pre-algebra, Beginning algebra → → reform course with mathematical literacy
- Connects to statistics, quantitative reasoning, etc
- Intermediate algebra → → reform algebra course
- Connects to college algebra and STEM-like math courses

Reform Math for All Students



Reform at the Next Level

- Isolated change tends to degrade over time
- College Algebra as general education course
- Quantitative Reasoning: Area of Growth
- Introductory Statistics standards

Focus on the Learning Environment

- Redesign versus Reform
- Delivery, Student Support and Faculty Support
- Connect math classes with support services
- Skilled faculty with deep tool-box

Invest in Professional Development

- Framework (concepts and theories)
- Hard work
- Appropriate tools
- Networking
- Advance the profession

Emerging Reform Models

- AMATYC New Life
- Dana Center New Mathways Project
- Carnegie Foundation Pathways
- AMATYC ‘Right Stuff’ (college algebra)

See handout for references and web sites

An analysis of various models

Content
> Student needs
> Professional

Delivery
> Diverse modes
> Professional

Course Structure
> Direct when possible
> Student needs

Student Supports
> Engagement
> Success tools

Faculty Supports
> Growth
> Connections



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> Connections

Emporium and Related Models

2010
Baseline

Levels of Reform

Content

- > Student needs
- > Professional

Delivery

- > Diverse modes
- > Professional

Course Structure

- > Direct when possible
- > Student needs

Student Supports

- > Engagement
- > Success tools

Faculty Supports

- > Growth
- > Connections

Emporium and Related Models

New Life Models

2010
Baseline

Levels of Reform



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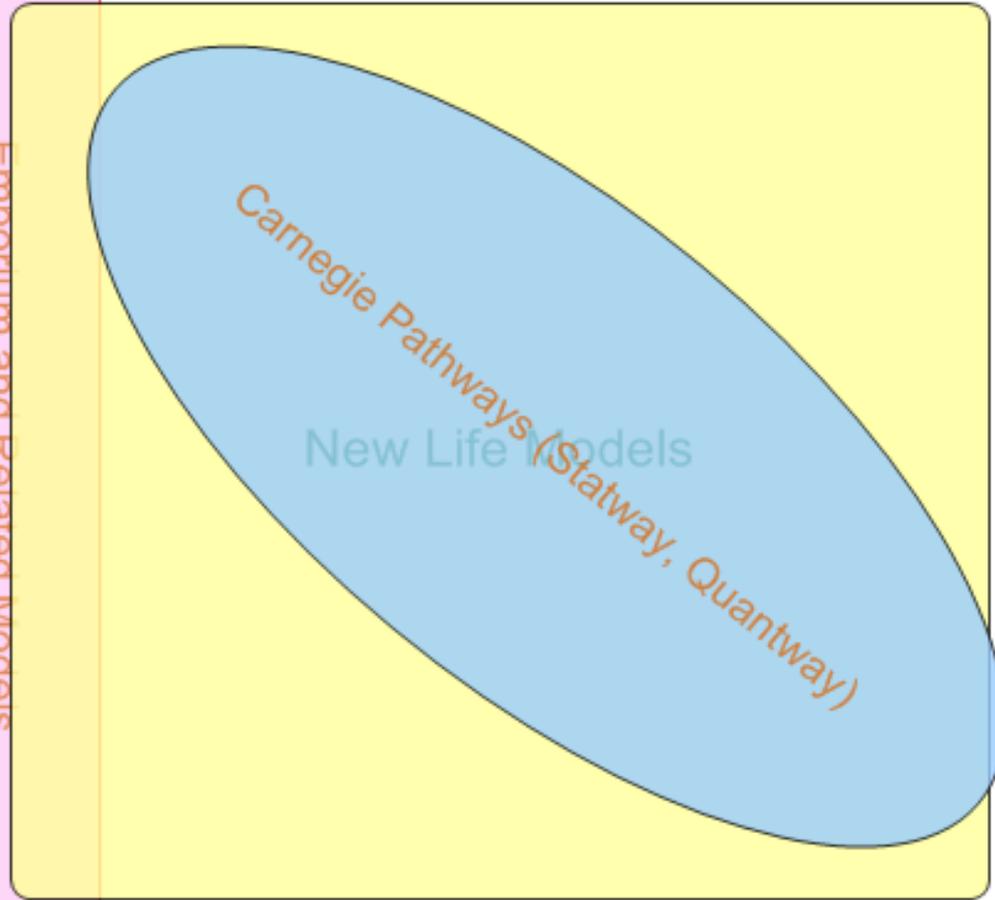
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2010
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Levels of Reform



Not shown: Dana Center Mathways

Content
> Student needs
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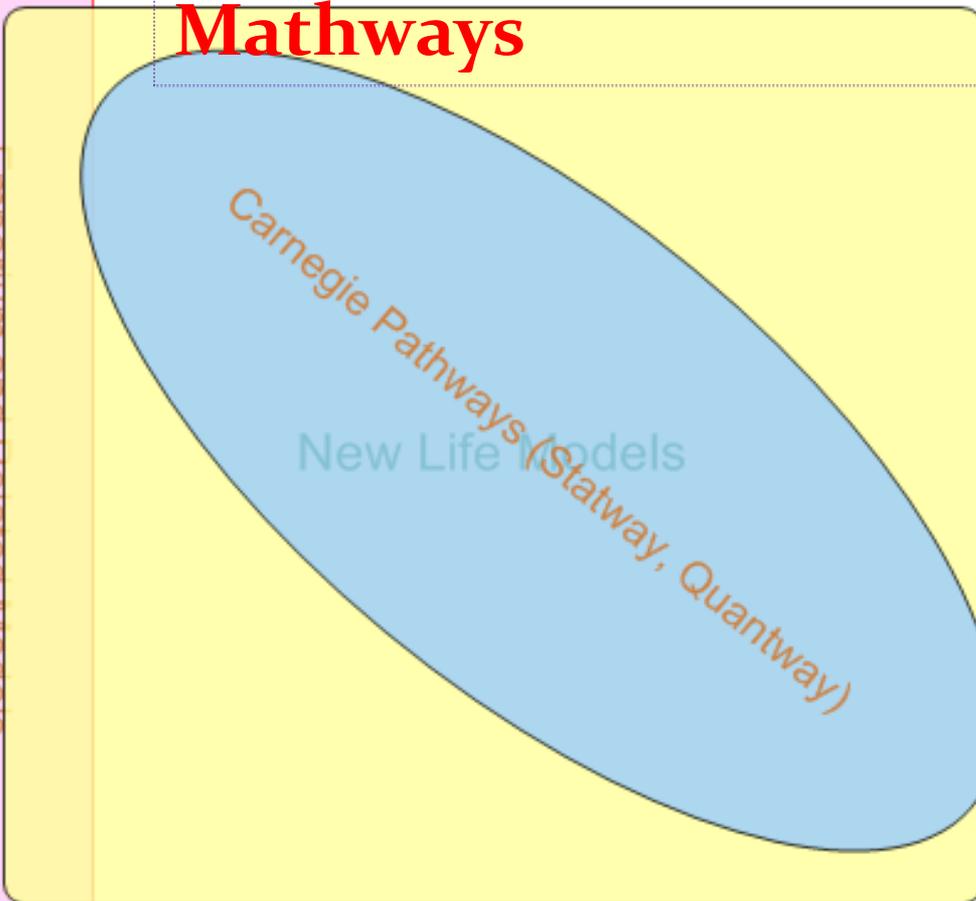
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Levels of Reform

Questions for discussion

- What should we do in Michigan?
- Can we expect a simpler solution to work?
- Can we form networks in support of specific reform models?
- Are we a ‘professional faculty’?